WEEDS TREES and TURF

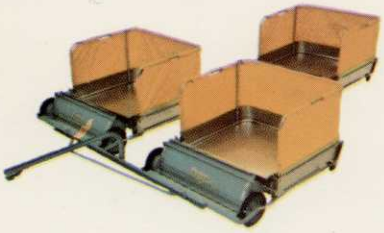
MARCH 1973

The Action Arena Of Weed Control

The World's Fussiest Grounds Keeper

You're looking at one of the reasons why Parker makes the highest quality grounds-care and lawn-care equipment. He's R. W. Parker and he watches our every move . . . personally tests everything we make . . . Raises a fuss if he sees something he doesn't like. He's carrying on the diligent dedication to quality started by his grandfather in 1884.

If you're in charge of grounds- and lawn-care, and if you want equipment that works smoother, lasts longer, hardly ever needs repairs, see your Parker distributor. He has a complete line of Parker self-propelled, trailing and manual turf sweepers, VAC 35 and Scavenger® vacuums, Hurricane® Blowers, and Thatch-O-Matic power rakes. They can save you time and cut the cost of grounds maintenance.



We'll prove it with an on-the-spot demonstration!

Write for details on the complete line of Parker turf-care equipment.

Parker

SWEEPER COMPANY Box 720 Dept. WT-73 Springfield, Ohio 45501

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"Is your superintendent getting the course ready for a spring tournament?"

"No, Jim always keeps it looking this good."

How does he do it? He starts with the Du Pont TERSAN® 1-2-3 Disease Control Program and stays with it.

The first step is the application of TERSAN LSR turf fungicide on tees, fairways and greens in early spring. TERSAN LSR stops Leaf Spot problems caused by overwintering spores of Helminthosporium spp. before the melting or fading-out stage. It also protects against Rust and Large Brown Patch before they have a chance to damage your turf.

This first step, along with your other sound turf management practices, can put your spring playing surface into shape that's fit for a tournament. And the second and third steps of the TERSAN 1-2-3 Program will help keep your turf that way because this program controls all major turf diseases on all common turf grasses all season long.

The TERSAN 1-2-3 Program offers disease control that's complete, effective and economical. Disease control that surprises new members, keeps old ones satisfied—and lets the superintendent be more appreciated.

For complete details and a supply of TERSAN turf fungicides, contact your golf course supplier.

With any chemical, follow labeling instructions and warnings carefully.

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TERSAN 1·2·3 DISEASE CONTROL PROGRAM

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We'll put our weed control crew

up against yours any day!

Would your crew promise (and deliver!) effective control of many weeds for as little as ten cents per thousand square feet?

Would they promise not to damage or weaken any growing stock they are cleared to handle?

Would they keep on working around the clock, month after month?

If not, turn the weed control job over to our crew. You couldn't ask for better, more dependable help!

Elanco Products Company, a division of Eli Lilly and Company, Dept. E-455, Indianapolis, Indiana 46206, U.S.A.

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WEEDS TREES and TURF®

Volume 12, No. 3 March, 1973

James A. Sample
Editor

Hugh Chronister
President

Arthur V. Edwards
Publisher

D. D. Langley
Director of Circulation

ADVERTISING SERVICES

Leo Nist
Advertising Production
9800 Detroit Ave.,
Cleveland, Ohio 44102
Tel. 216+651-5500

ADVERTISING SALES OFFICES

Headquarters
Cleveland, Ohio 44102
9800 Detroit Ave./216+651-5500
Ext. 27

Chicago, Illinois 60601
333 N. Michigan Ave./312+236-9425
John Kielp

New York, New York 10017
757 Third Ave./212+421-1350
Russell Bandy

Cleveland, Ohio 44102
9800 Detroit Ave./216+651-5500
Roger Gilmore

"Serving The Green Industry"

Halt Weed Assault 14
Fort Dix Military Reservation in central New Jersey is cutting costs of vegetation maintenance through the use of chemicals. Joe Haug, agronomist at the modern military post tells how he does it.

Herbicide Emulsions Keep Applicators On Target 16
Here's a report on emulsions and their advantages to the professional applicator. Tom Smith of Hill-Smith Systems, Memphis and Nashville, Tenn. demonstrates the use of one type of emulsion called Accutrol.

He Makes Trimming Easy With Chemicals 18
Vegetation maintenance in cemeteries involves both chemicals and mechanical equipment. But when mowers are used to trim around fences and monuments the result is often high repairs, lost time and a less than professional job. At the Mount Saint Benedict Cemetery in Bloomfield, Conn. superintendent Vito Patrissi has switched to chemical trimming.

$5 Billion Challenge 22
The Southern Weed Science Society met in New Orleans in January for the 26th annual meeting. Here's a WTT special report on what went on.

Update: Gypsy Moth 1973 24
If you live in the northeast and haven't been hit by Gypsy Moth, consider yourself fortunate. It may be only a matter of time. Read what can be done about this regional problem.

Don't Lose Your Turf to Leafspot 28
We're in the prime leafspot season. Superintendents must protect turfgrass against his tough disease. A preventative maintenance program is described in this article.

Greatest Spectacle In Commercial Turfgrass 32
A first hand report of the 44th annual Golf Course Superintendents Association of American turfgrass conference and show.

Inside Look At Service Schools 72

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The Cover

Weed control within the Green Industry is varied. Our cover captures only a part of this action scene. Starting clockwise from the top, Rich Tate of Chem-Trol, Inc., Kansas City, Kans. sprays the fence line of an industrial plant site. In aquatic weed control, Bill Perdue pilots this chopper into position over destructive water hyacinths. At the bottom Robert Wright, Precision Spraying, Wayzata, Minn. and Ed Sorgatz of Ciba-Geigy check out weed species in a railroad yard before spraying. And most golf course superintendents will be applying herbicides on turfgrass to control weeds. The center of the cover is one of the most common weeds found around — crabgrass. Jim Converse of O. M. Scott & Sons Co., Marysville, Ohio is the artist.

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SIReservoir tree injector puts the treatment where it works best.

Every year thousands of stately elms are ravaged by Dutch Elm disease, resulting in removal of these lovely trees. The SIReservoir (Systemic Implant Reservoir) system puts the treatment chemicals where they work best . . . internally, in the xylem, where the vessels carry the systemic to all parts of the tree. SIReservoir injectors can be installed in minutes, uptake begins immediately. The SIReservoir procedure has been included in the 1973 du Pont Benlate label for use in elms.

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Write today for complete details

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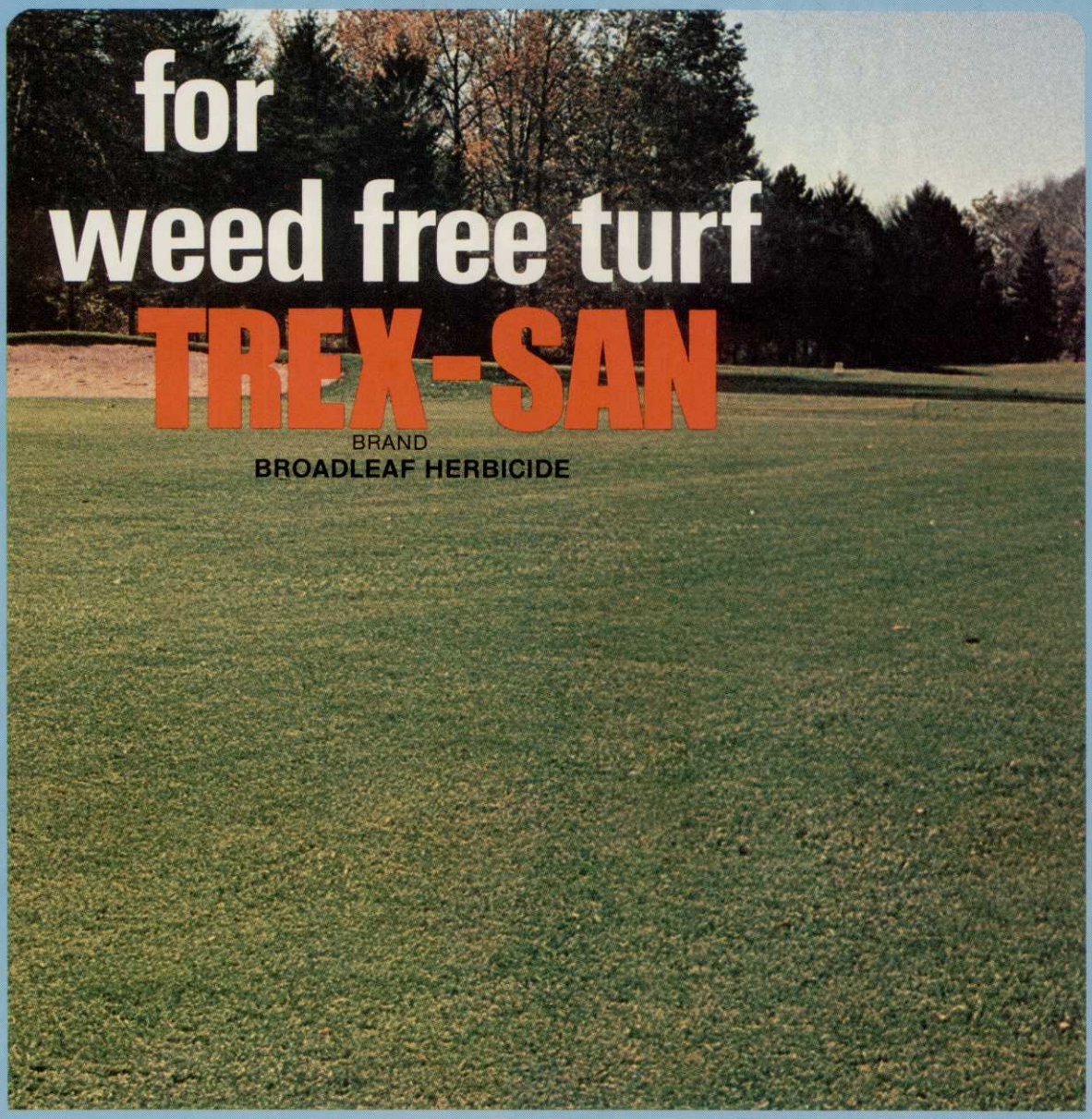
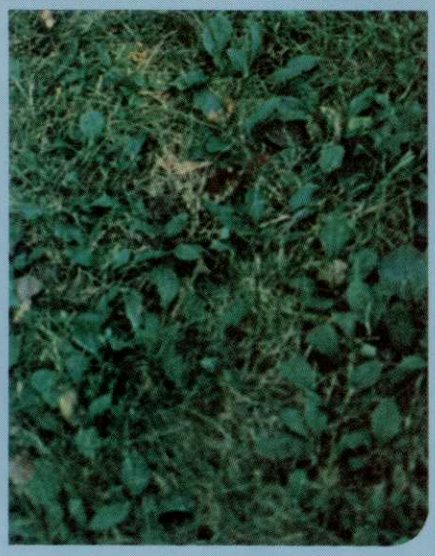


One TREX-SAN (TM) application in spring, and one in fall will actually control more than 35 different broadleaf weeds, while maximizing chemical safety to turf and ornamentals. TREX-SAN is a unique combination of 2,4-D, MCPP and DICAMBA. The synergism of this three-way combination gives you complete weed control with a cost-in-use that's less than that of most other broadleaf herbicides, when product and labor savings are considered!

TREX-SAN stops BEDSTRAW, BLACKMEDIC, BUCKHORN, BURDOCK, CHICORY, CHICKWEED, CLOVER, DANDELION, DOCK, GROUND IVY, HENBIT, KNOTWEED, PLANTAINS, POISON IVY, POISON OAK, PURSLANE, RAGWEED, SHEEP-SORREL, SHEPHERD'S PURSE, SPEEDWELL, SPURGE, THISTLE, WILD CARROT, WILD GARLIC, WILD LETTUCE, WILD ONION, YARROW and many more!

Order from your Mallinckrodt distributor today!



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Jack Poksay's secret weapon.

You're looking at the business end of a machine that aerates, cores, renovates, slices, spikes, and cultivates. It's the Jacobsen 595 Turf Aerator. That's the weapon.

Now about Jack Poksay. He's with JEP Sales, Inc. at Yardville, New Jersey. Like all of us Jacobsen Distributors, he knows what the secret of healthy, luxuriant turf really is.

Deep root penetration. It's as simple as that. And as difficult as that.

Turf roots need to breathe. They need to soak up life-giving water, sunshine and fertilizer. But when the soil has become compacted, or the turf gets heavy, the nutrients have a hard time getting through. That's the difficult part.

Now here's the easy part. Jacobsen aerators break up compaction, loosen the dirt and force openings in thick turf that give the roots a better chance to grow deeper and stronger.

Whether you have a lot of turf or just a modest amount, we have the exact kind and size of aerator you need.

Our big pull-behind models aerate a five or seven-foot wide swath. The smaller self-propelled models spike or aerate in 18", 21" and 28" wide swaths.

If your turf needs aeration, and you're not doing anything about it, you have a choice. You can worry about it after your turf starts looking under par, then try to play catch up ball.

Or you can have a chat with your Jacobsen Distributor about selecting the proper aerator.

It's no secret about which is the better choice once you get to the root of the matter.

Your Jacobsen Distributors

Before we sell it, we buy it.

For the name of the distributor near you write: Jacobsen Turf Directory, 1721 Packard Avenue, Racine, Wisconsin 53403

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With MAINTAIN® CF 125, you can get along without so much mowing, pruning, trimming and edging.

Because practically everything MAINTAIN touches grows slower.

Just how much slower depends on what the weather does to your greenery and what kind of greenery it is.

For example, 200 acres of grassed median in Pennsylvania were treated with MAINTAIN early last spring, just after the first mowing. The grass was cut once more before Labor Day, and that was it. MAINTAIN saved the State Department of Transportation approximately 5 mowings that year.

What's more, MAINTAIN works on trees, shrubs and vines as well as grasses.

While it slows down the growth of turf, it practically stops broadleaf weeds in their tracks. Which, naturally improves the quality of the turf, as well as the effectiveness of your maintenance program.

And MAINTAIN can be sprayed where machinery can't go. Up steep slopes. Around guard rails. Along fences.

At Washington National Airport in Washington, D.C., MAINTAIN was used on a dangerously steep bank between two levels of the airport. MAINTAIN saved the maintenance department 5 mowings, and the chance of injuries was reduced immeasurably because the equipment was not used as often.

Of course, the best way to find out what MAINTAIN can do for you is to try it. And the best way to do that is to get in touch with your U.S. Borax distributor or your nearest U.S. Borax office:

234 Eglinton Ave., East Toronto
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Editorial **Without A Voice . . .**

We continually read in the daily press about the united wallop certain organizations pack in their punch on national issues involving legislation, employee rights and job security. Hardly a month goes by but the leaders of one of these groups place their job and those of the membership on the firing line in an effort to gain increased attention to their cause.

Seldom, if ever, do we see a strong stand taken by the national organizations of the Green Industry. Every reader is aware of Federal legislation passed within the past three years that either limits, strangles or changes your method of doing business. The Operational Safety and Health Act of 1970, the Federal Noise Control and Abatement Act of 1972, the Federal Water Pollution Control Act Amendments of 1972, the Federal Environmental Pesticide Control Act of 1972 — these are but a few of the more publicized laws that govern the way you will do business in the future.

Yet, other than a mild reference or research paper at a convention on these or other laws, little is ever done by Green Industry organizations. Why? We don't know. Part of the answer lies in the fact that action by an organization's leaders has a contagious effect among the members. Little or no action has an equally contagious effect. Our intent is not to argue about what has been done, but to point out what can be done.

Let's start with membership. We believe that national organizations such as the United Auto Workers, the American Farm Bureau Federation, the National Pest Control Association, the National Audubon Society and others have discovered that membership means a great deal when these organization leaders meet at the bargaining table or before a Congressional inquiry.

We recently polled the membership in eight national Green Industry organizations. The combined total was fewer than 10,000 members. What Green Industry organization can boast a membership that includes over 50 percent of those eligible? (Most of the organizations we work with have a membership of only 10 percent of their potential). Perhaps this should become the most active issue within the Green Industry. We would submit that the organization's most capable leaders should be in charge of the membership committee.

A second area would be participation. In late January, the Environmental Protection Agency published a notice in the Federal Register asking for public comment on the key issues of the Federal Environmental Pesticide Control Act. According to an EPA news release, over 150 environmental, agricultural, consumer, industrial and other con-

(Continued on page 85)

0217® Brand Fylking Kentucky bluegrass mixes beautifully with other varieties. Its color and texture blend invisibly to create a velvet surface. Fylking tillering is superior (32 times as great as some prominent grasses at high nitrogen levels) produces thick, cushiony turf. Its aggressive rhizome root system crowds out weeds. More drought, traffic and disease resistant, Fylking can be cut low as 3/4 inch (even 1/2 inch). Low and slow-growing, less mowing and watering are necessary. Green earlier in spring and stays green longer into fall, 0217® Brand Fylking Kentucky bluegrass is the name to remember. Order it from your local wholesale seed or sod distributor.

Another fine product of Jacklin Seed Company
Division of The Vaughan-Jacklin Corporation

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Government News / Business

EPA's proposed operating budget for fiscal 1974 is up $44 million for a total of $515 million. Increases are to help EPA implement recent major legislation. The budget calls for $4.4 million for the pesticide program.

Secretary of Agriculture Earl L. Butz has announced the nomination of Robert W. Long to be assistant secretary of agriculture for conservation, research and education. Long, 50 was a senior vice president of Ban of America where he has been in charge of all agricultural loans, domestic and international. If the nomination is approved, he will be responsible for the Forest Service, Soil Conservation Service, Agricultural Research Service, Cooperative State Research Service, Extension Service and National Agricultural Library.

Harold Wake, President of Perma Rain Irrigation, Lindsay, California has announced the acquisition of Bud Wil, Inc. of Anaheim. This move will help Perma Rain increase capacity in making plastic fittings and shapes for the industry.

More on noise . . . Under the Noise Control Act of 1972, the Environmental Protection Agency has been granted authority to set standards for any product or class of products which may be noise producing. Both domestic and imported products are subject to the Law. Manufacturers of mis-labeled products or those which do not conform to the Law are subject to fines of up to $25,000 per day for each violation and imprisonment of up to one year. Further, a manufacturer must issue a warrant that a product is in compliance at the time of sale. He is also required to maintain records, provide information and supply products coming off the assembly line to EPA, if requested.

Johnson Hydraulic Equipment Company of Minneapolis has become Johnson Hydraulics Division of Arps Corporation. Duane Solem becomes General Manager of the Division. All present relationships will continue as in the past.

Toro Company has launched a campaign to organize a nationwide network of elite service dealers. This cadre corps would be measured on their ability to achieve a consistent, high standard of after-sale service for consumer products. Minimum requirements include a well-equipped and well-stocked shop, skilled personnel and a commitment to perform prompt, high-quality service on any Toro consumer product, regardless of point of purchase, says Toro.

If you average more than 13.57 miles per gallon on your passenger car, consider yourself above average. Statistics released by the Federal Highway Administration show that the annual miles per vehicle rose, on the average, to 10,121 in 1971. Gallons of fuel consumed per vehicle, also rose to 746. Figuring a gallon of fuel costs 34.9 cents, the average motorist spent $260.35 in 1971 for gas. Now for the kicker. Motorists owning 92,799,000 autos spent $24,160,219,650.00 to purchase 69,228,054,000 gallons of fuel.

The one industrial herbicide that kills *all* of them

KROVAR® I

WEED KILLER

KROVAR I gives you the kind of performance that keeps customers satisfied. That spreads good rumors about your work. And that brings in new business every year.

The dual solubility of KROVAR I provides effective control in any weather. Only a little moisture is needed to activate it. In high moisture, it dissipates less rapidly than straight bromacils. And it gets to the roots faster than straight diurons.

It's safer for nearby vegetation, because it washes less than straight bromacils. And it's non-flammable.

Just 5 to 15 pounds per acre gives season-long seedling control. You'll be ahead of the game with KROVAR I. It's good business to specify it in your custom-application contracts.

Get *all* the weeds and grasses. Use KROVAR I.
And get *all* the business.

When using any chemical, follow labeling instructions and warnings carefully.

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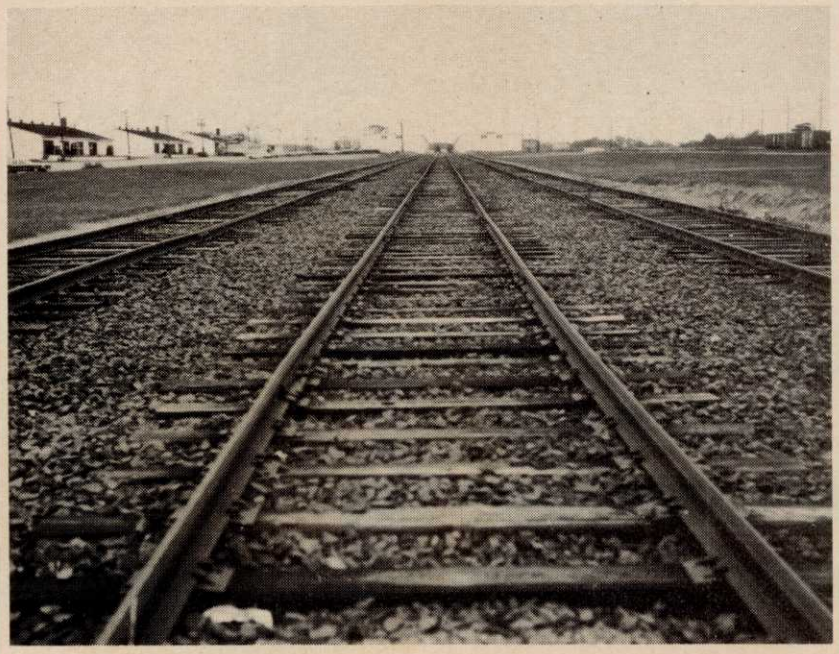

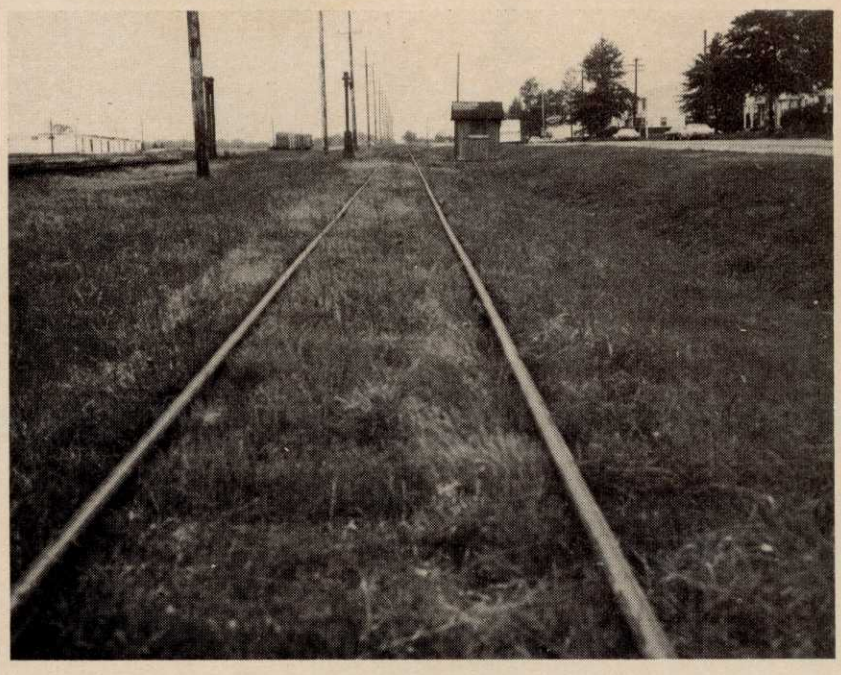

Treated railroad siding (left) shows how weed-free track has been established at Ft. Dix. One spring application of Hyvar X bromacil weed killer was all it needed. Untreated siding (below left) shows how weeds and grass soon overrun and hide this abandoned track on the Army post. This particular siding is no longer in use.

HALT WEED ASSAULT

Ft. Dix Orders Chemicals To Police Army Post

TODAY'S Army is changing. It "wants to join you" say recruiting posters and it's doing just that at Fort Dix Military Reservation in central New Jersey. Here soldiers stick to soldiering and modern vegetation control chemicals are used to tackle many time-consuming tasks once performed by recruits.

No longer are soldiers out cutting weeds, hacking away at brush or mowing grass. That's all done by a professional grounds maintenance crew lead by Joe Haug, head agronomist at the largest military installation in the northeast.

Haug and his land management team are part of the Fort's Division Facilities Army Engineers which is responsible for managing nearly 50 square miles of virtually every type of land—from forest and parks to railroads and residential lawns. Biggest maintenance chore of all on the 31,993-acre base is mowing about 3,000 acres of grass.

"Our mowing costs have been rising steadily over the past few years because of an increase in mowing obstacles," says Haug.

Those obstacles include roughly 5,000 miles of fence, most of which has been installed within the past three years to provide better protection of high security areas such as magazines and motor pool areas. A large number of trees and ornamentals planted in 1969 have also added to the rising cost of mowing.

To help offset the high cost of mowing and to compensate for yearly fluctuations in maintenance help, Haug tried an experimental application of Hyvar X bromacil weed killer in 1970. The soil active herbicide controls a wide variety of weeds and grasses for extended periods of time.

"We treated several fence lines and all 17 miles of railroad track that year," recalls Haug, "and results were very good. The chemical kept ground weed-free for months and saved us a great deal of hand mowing and hand clipping."

That successful test application of Hyvar X led to full-scale use of it and other herbicides in 1971 and, by 1972, all push type hand mowing

(continued on page 48)

save trees

MAUGET tree injectors

MAUGET TREE INJECTION PROCESS

Avoids drilling damage

APPROVED Trunk Injection Method for Utilizing Benlate® Fungicide In Combating Dutch Elm Disease Under EPA Reg. No. 352-354.

INJECT-A-MIN® Nutrients for Correction of Elemental Deficiencies In Problem Trees.

INJECT-A-CIDE® for Control of Many Insect Pests In Ornamental Trees.

J. J. MAUGET CO.

P.O. Box 3422 **BURBANK, CALIFORNIA 91504**

MAUGET TREE INJECTION MEETING DATES AND PLACES

- ☐ March 27 — Phoenix, Ariz., Holiday Inn, Airport
- ☐ March 29 — Spokane, Wash., Ramade Inn
- ☐ April 9 — Houston, Tex., Holiday Inn, Airport
- ☐ April 11 — Oklahoma City, Okla., Holiday Inn, West
- ☐ April 13 — Little Rock, Ark., Holiday Inn, North Little Rock
- ☐ April 23 — Atlanta, Ga., Holiday Inn, South
- ☐ April 25 — St. Louis, Mo., Holiday Inn, North
- ☐ April 27 — Louisville, Ky., Holiday Inn, South
- ☐ May 7 — Denver, Colo., Holiday Inn, Airport
- ☐ May 9 — Minneapolis, Minn., Holiday Inn, Airport #2
- ☐ May 11 — Chicago, Ill. Holliday Inn, O'Hare Airport
- ☐ May 15 — Cleveland, Ohio, Holiday Inn, Airport, West
- ☐ May 28 — Philadelphia, Pa., Holiday Inn, Airport, South
- ☐ May 30 — New York, N.Y., Holiday Inn, LaGuardia Airport
- ☐ June 1 — Boston, Mass., Ramada Inn, Logan Int. Airport

All meetings begin at 9 a.m.

Registration Fee: $8.00 each. Payable to:

J. J. MAUGET CO.

Attached registration card and fee must be received at least 10 days prior to meeting.

MAUGET TREE INJECTION REGISTRATION

Reserve _____ places in _____ (city)

NAME(S) _____

_____

_____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Registration Fee: $8.00 (includes coffee, Danish and lunch). No Refunds. Meeting to begin at 9 a.m.

Make Checks payable to: J. J. MAUGET CO.

Enclosed fee of $_____

Return this registration form and fee at least 10 days prior to meeting to:

DEL KENNEDY
Meeting Moderator
P.O. Box 365 • UKIAH, CALIF. 95482

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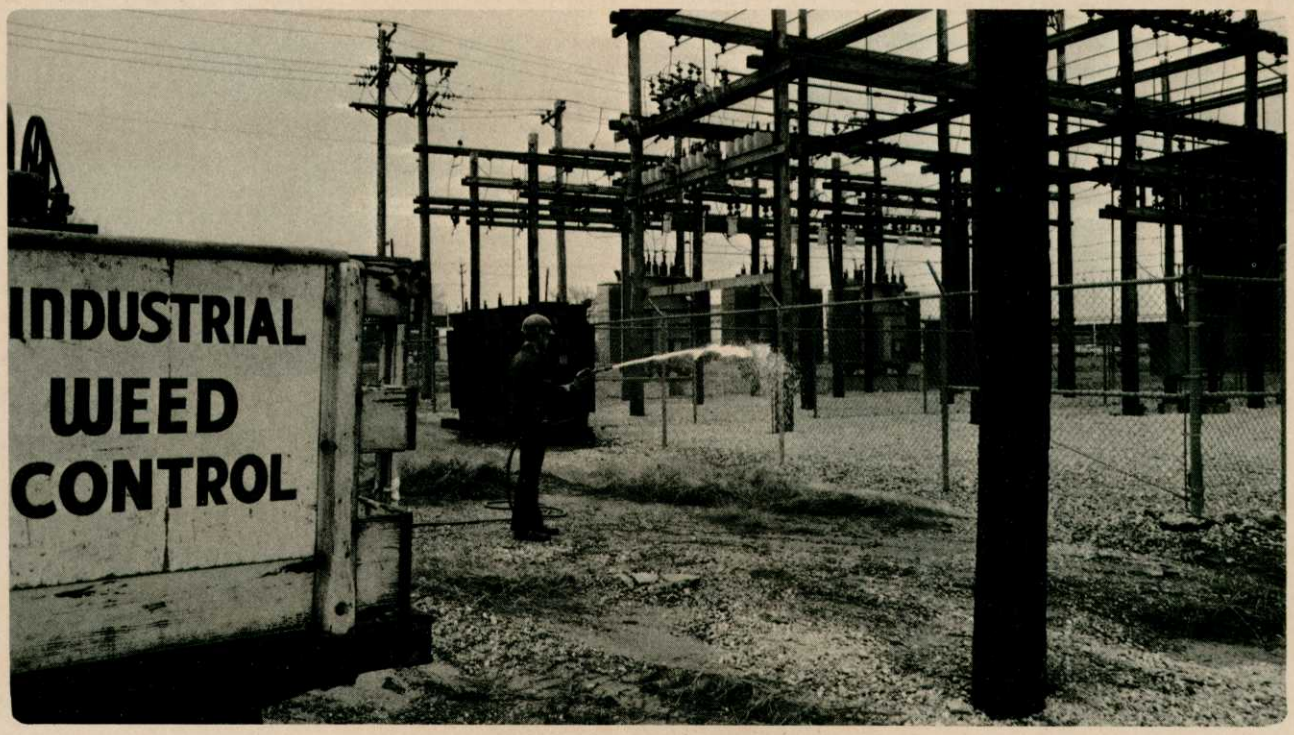


Herbicide Emulsions Keep Applicators On Target

PROFESSIONAL application of vegetation control materials is an exact business that requires as much on-the-job training and experience as many of the established trades. You just can't put a spray gun in the hands of an inexperienced man. That's why applicators are licensed and tough Federal laws are enacted.

There's good reason to be careful. Modern herbicides are designed to fit specific problem situations much like the way in which modern medicines are prescribed for a specific illness. The wrong compound can have disasterous results.

Application techniques are critical, too. The professional applicator must take into account as many as a dozen factors before he squeezes the trigger or flips the lever. Wind velocity, volatility, drift, weed species, coverage, wand and arm movement and a host of others must all be clearly understood. New techniques and new application equipment are helping the applicator minimize the chance for error, however. One of these is foam.

Foam revolutionized the shaving industry. Foam makes it possible to land crippled aircraft on runways with minimum loss of life. Foam is used throughout the fire-fighting industry. And now foam has entered the industrial herbicide market in a big way. At least a half-dozen major manufacturers currently make equipment or associated products designed to help the applicator stay on target.

Perhaps the biggest problem in application is drift. Foam, for the most part, makes this problem small. The applicator must still be careful, no question about it. But the chances of injury to desirable vegetation are certainly reduced.

This handgun is equipped with an air emulsion nozzle. Note compactness of unit.

One of the newer foam systems is Accutrol. (See WTT April 1972) —Without the need of an auxiliary foam generator, dual holding tanks, or other special apparatus, this system boasts impressive control at reduced application costs.

The secret of the system is in the nozzle. Simple in design yet effective, nozzles fits standard sprayers. In about as much time as it takes to fill the tank with water, you can gear up to put down milky-white droplets of air emulsion that have little or no tendency to float in the air. That's right, air emulsion. You've heard about invert emulsions where oil surrounds water droplets. This is air emulsion where air and water mix to form foam or something closely resembling foam. All this takes place about six inches away from the gun handle—right in the nozzle.

Inside the nozzle things are quite simple. There's a flow control disc which does just what it says; the foam generator and the nozzle tip to control the spray pattern. The flow control disc and the foam generator work together to increase or

(continued on page 58)

trimec TURF HERBICIDES®

NOW YOU CAN ATTACK THE WHOLE SPECTRUM OF BROADLEAF WEEDS USING TRIMEC® TURF HERBICIDE.

TRIMEC TURF HERBICIDES ARE EFFECTIVE!

We haven't found a broadleaf weed Trimec Turf Herbicides will not control. We're still experimenting . . . still looking for the Trimec-resistant broadleaf weed, but so far we haven't found it.

TRIMEC TURF HERBICIDES ARE ECOLOGICALLY SOUND!

The unique action on the combined biodegradable components of Trimec are so effective you need less herbicide per square foot to kill undesirable broadleaf weeds. Trimec Turf herbicides have a low toxicity to wild life and fish. Trimec is non-volatile and will not damage ornamental shrubs, trees and sensitive grasses when directions are followed.

TRIMEC TURF HERBICIDES ARE ECONOMICAL!

Trimec Turf Herbicides will control more weed species per dollar. Controls even tough, hard-to-kill weeds. Trimec Turf Herbicides mix readily in all kinds of water, are easy to use, effective and economical.

for further information contact:

GORDON'S Chemicals®

-GORDON CORPORATION

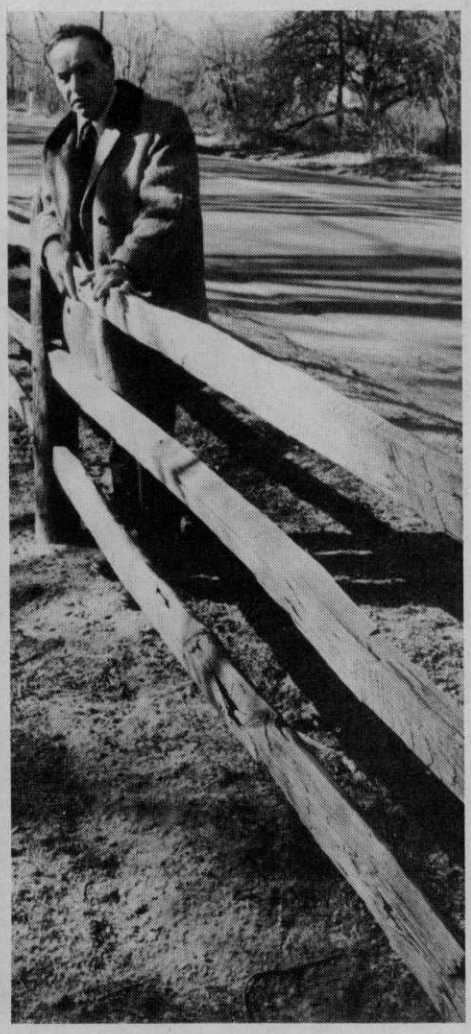
300 SOUTH 3RD ST., KANSAS CITY, KANSAS 66118

Phone: 913/342-8780

6148

For More Details Circle (109) on Reply Card

Vegetation control around markers and monuments cuts labor costs in Bloomfield, Conn. Manager Vito Patrissi uses Pramitol herbicide to eliminate unwanted vegetation.



Weed control under fences keeps mower maintenance at a minimum. Fences have a clean appearance year-round.

He Makes Trimming Easy With Chemicals

SUBSTITUTING CHEMICALS for hand trimming in cemetery maintenance programs can pay off in reduced labor costs and appearance as long as programs are carefully managed.

Vito Patrissi, manager of two cemeteries owned by the Mount Saint Benedict Cemetery Corp., at Bloomfield, Conn., says chemical control of grass around raised markers, monuments, fences, and other areas has become an important part of the maintenance program for the 160 acres of cemetery grounds.

Properly managed, Patrissi says, a chemical program will give attractive results as well as cut costs. As with almost every other chemical treatment, however, careful application, and therefore proper training for employees, is important.

The chemical program has been used at the two cemeteries for a number of years. One of the cemeteries is little used now, and many of the older gravesites are irregularly laid out, making mowing a difficult chore.

"This was the area where we first started using chemicals," Patrissi says. "Most of the older sites were sold without endowed care contracts, and since this cemetery dates to the 1870's there are many of these to maintain. So cost was extremely important.

"We're also using a chemical program in newer areas of the cemetery, too, but here careful use is even more important because visitors will complain if the work is unsightly."

A number of different chemicals could be employed in such a program, according to Patrissi. Pellets and liquids work best in terms of ease of application and mixing, although wettable powders and modern spray equipment make the job easy, too. The most economical weed control program will provide at least season-long control, he says. Pramitrol and Atratol have both been used in the Mount Saint Benedict program.

Spraying a band of Pramitrol about four inches wide around monuments has virtually eliminated the need for hand trimming, Patrissi points out. This is called chemical trimming.

For the first few days after spraying the grass does look kind of unattractive, notes this superintendent. But once the grass area has been completely controlled, the treated area has a neat, trimmed appearance that requires little or no maintenance.

Care should be taken in applying any bare or clean

(continued on page 56)

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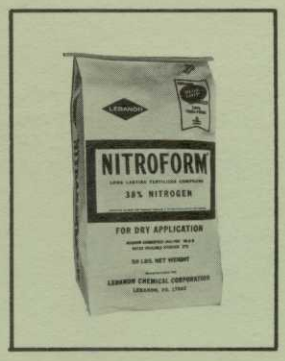

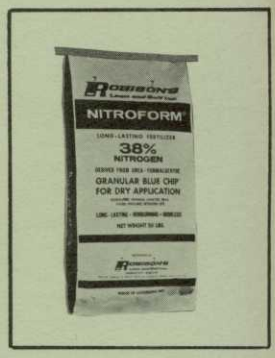

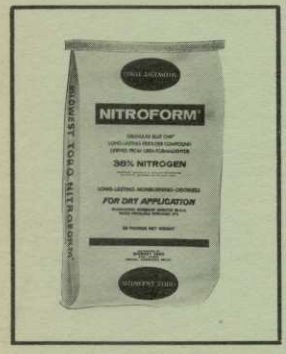

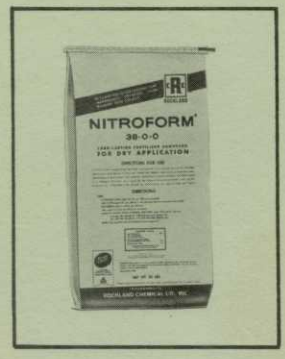

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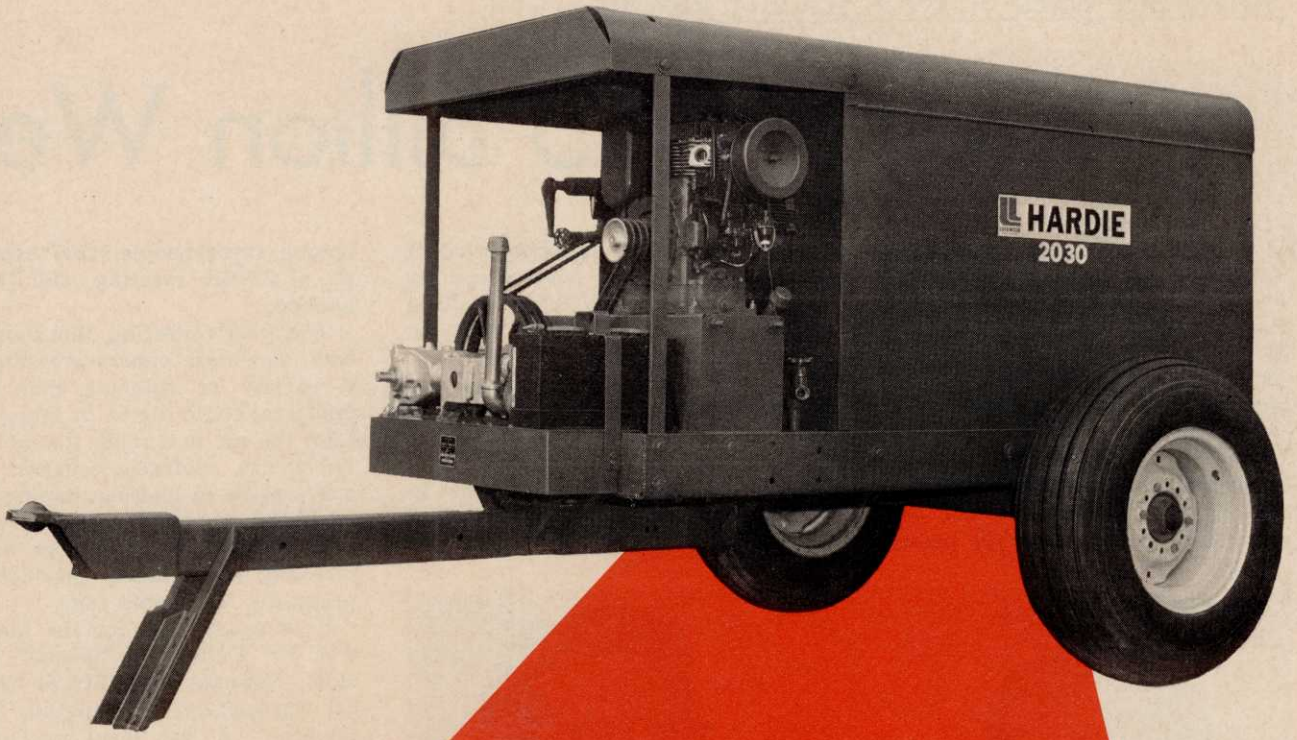

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$5 Billion Weed

"Weeds are the bad guys in an age-old drama in which the farmer and maintenance engineer are constantly facing the forces of nature. Weeds are a $5 billion challenge and touch on the lives of every man, woman and child in this country . . ."

These and other statements brought a deeper realization of the role of weed science in the 20th century as more than 800 persons met for the 26th annual meeting of the Southern Weed Science Society in New Orleans in January. In a word, the meeting could best be described as enlightening.

The Southern Weed Science Society is unique in the fact that at perhaps no other meeting do industry, university, government and press personnel work together in support of one goal. Weeds and weed science has a magentic attraction among these people. One exposure to a SWSS meeting and you're hooked.

Outgoing president, Turney J. Hernandez (l) is presented a plaque and gavel by incoming president, Allen F. Wiese. Dates of next year's meeting are Jan. 22-24.

Graduate Contest winners in the Soil Aspects division are: (l-r) Bill Maksymowicz, University of Kentucky, honorable mention; Charles Slack, University of Kentucky, second place; Glenn Davis, University of Tennessee, first place. Charles Rieck, University of Kentucky and chairman of the SWSS student interest committee, presents $50 award to Davis.

This year's meeting, like those before, had more papers presented on a variety of subjects than most delegates could digest in three days. Like the cat in a room full of rocking chairs, conferees scurried from one session to another hoping time schedules were not broken so as to hear a favorite speaker or an interesting topic. Thank goodness for programs and name tags.

Keynote speaker for the meeting was Dr. Donald A. Spencer, ecologist, National Agricultural Chemical Association, Washington, D. C. Spencer, who has spent most of his career as a wildlife biologist, spoke on "The Niche Of Weed Science In The Environmental Picture." He said that "herbicides are designed to manipulant the plant cover." The change that takes place results in changes in the biosphere that affect wildlife and other plants. Recently "there has been a growing movement to resist change and return to unregulated natural processes."

But Spencer cited numerous instances in which changes take place in nature that have far disastrous effects. Without management, nature would vacillate from one untenable situation to another. Herbicides as a tool of management have helped environmental managers effectively select, eliminate and suppress undesired species from those favored.

The ecologist pointed out that from the beginning herbicides were screened to minimize adverse environmental effects. When unanticipated adverse effects of some compounds come to light, correctional measures have been rather promptly taken, he said. Herbicide manufacturers now test new candidates with full knowledge of contamination, residue build up biodegradation.

Theme for the SWSS meeting was "Weed Science—For Everyone" and in his presidential address Turney J. Hernandez challenged weed specialists to strive for professionalism both on the job and off the job. Weed scientists are battling a world weed problem. In agriculture, "chemical control adds so much more to food production over any

Challenge

other method that a nation can hardly afford to be without it," he said.

"Off the farm, weeds create other problems, as so many of us know. On highway shoulders, on railroad rights-of-way, in storage areas, in drainage ditches, on industrial sites, in vacant lots, in parking areas and along utility lines and fences, weeds are a maintenance headache, a fire menace, a flood potential, or an environmental eyesore.

"For the urban citizen, weeds may not be an obvious problem, yet millions suffer from hay fever, caused by weed pollen, or other allergies; for there are more than 700 plant species that are known to cause inconvenience, illness or even death," the SWSS president said.

Hernandez spoke about the dependence on herbicides that has taken place during the past 25 years. In industrial weed control, applicators have honed their profesison to a prescription science. As those in the Green Industry know, individual programs are developed that solve the needs of the customer. All this has taken place because of high costs and increasing scarcity of available labor. Thus, herbicides have had a direct relationship between industrial growth and environmental concern.

Yet, Hernandez pointed out that there still is a continuing need for better weed science education. Few college graduates have had training in modern weed science. "Public misunderstanding about herbicides is almost entirely due to lack of exposure," he said. "We must all become better teachers and perform like professionals."

In the session on regulatory aspects of weed control, Robert E. Hamman, manager, government relations, agricultural division, Ciba-Geigy Corporation, reported on the "Effects of Recent Legislation on Pesticide Development." He reviewed portions of the new Federal Environmental Pesticide Control Act pertinent to weed specialists. He said that the Act prohibits the use of any pesticide inconsistent with its labeling. This means that a manufacturer of product X can not sell it nor can an applicator apply it for a use for which it is not labeled.

New Officers of SWSS for 1973 are: (l-r) Ron E. Talbert, Arkansas Agricultural Experiment Station, Fayetteville, Ark., secretary-treasurer; Turney J. Hernandez, Du Pont Company, past president; Paul W. Santelmann, Oklahoma State University, Stillwater, Okla., vice-president; Allen F. Wiese, Texas A&M University, USDA Southwestern Great Plains Research Center, Bushland, Tex., president; William G. Westmoreland, Ciba-Geigy Corporation, president elect; and, James F. Miller, extension agronomist, University of Georgia, Athens, Ga., editor.

Following this T. O. Evard, section head, Federal-State Activities, Environment Protection Agency, Atlanta, reviewed the cooperation in regulation of pesticide applicators in the southeast. He pointed out that EPA has ten regional offices and each office is engaged in three programs, water, air and categorical. Pesticides are administered by the last program. Evard said the pesticide branch is divided into two sections, inspectional activities and Federal-state activities.

He reported on two recent cooperative efforts between EPA and state governments involving pesticides. One was a workshop to discuss minimum standards for applicator competency and minimum criteria for "restricted-use" pesticides and pesticide disposal. The other was Project Safeguard, a program aimed at small farmers. In neither case was mention made about training applicators.

Another EPA speaker, James C. Oberwetter, special assistant for public interest groups, Washington, D. C. underscored what other speakers had to say on the Federal Environmental Pesticide Control Act. Other than the fact that this is the

(continued on page 30)

Graduate contest winners in the Plant Aspects division are: (l-r) Ford Baldwin, Oklahoma State University, honorable mention; Richard Schumacher, University of Kentucky, honorable mention; Charles Rieck, student interest committee chairman; A. C. Edwards, Auburn University, first place; and, Russell Hahn, Texas A&M University, second place.

Going . . . .

Going . . . .

Gone . . . .

Update: Gypsy Moth 1973

Nature's Environmental Polluter

GYPSY MOTHS will begin eating their destructive way across the northeastern United States again this spring. Experts believe millions of acres could be defoliated in 1973, making it the worst shade and forest tree devastation on record.

The major threat is foreseen along the "leading edge" of the moth's infestation path — in central New York, the Pocono Mountains and southeastern Pennsylvania and southern New Jersey.

Serious problems were fortunately averted in 1972 through a combination of factors. Record rainfall contributed to viral and bacterial attack on moth populations. Continued wet weather helped hold down the moth hatch too. An estimated 1,361,500 acres in nine states were devastated in 1972, down about 600,000 acres from 1971.

Parasitic wasps and other natural predators along with chemical spray programs also helped contain the moth last year. Scientists also attributed reductions in some areas to moths "peaking out" after larvae populations ran out of food—repeating a cycle the pests have followed for a number of years.

In many quarters gypsy moths have become known as environmental polluters. They have earned this reputation by denuding woodland, causing changes in watershed patterns, and increasing soil erosion. They also remove wildlife shelter and reduce the amount of oxygen generated in the infested area.

As a result, scientists with agricultural research stations and forest research specialists across the northeast have been focusing their efforts on the gypsy moth for many years.

The pest was introduced to the United States in an effort to crossbreed it with silkworms. A chance wind storm caused the escape of a few specimens. These multiplied into the present major threat to shade and forest trees throughout the northeast.

The early outlook for 1973 is not good. According to Pennsylvania's

(continued on page 26)

Gypsy Moth Checklist

Scientists at Stauffer Chemical Company, who have been researching the gypsy moth as they sought a solution to its control offer a checklist for arborists and pest control specialists.

1. Recognize containment as a goal with gypsy moth.
2. Encourage use of natural predators and biological control agents.
3. Utilize effective, environmentally safe tree protection chemicals as recommended by state and federal authorities.
4. Check local recommendations and follow local ordinances regarding safe, effective spray programs with approved, recommended products to control gypsy moths.

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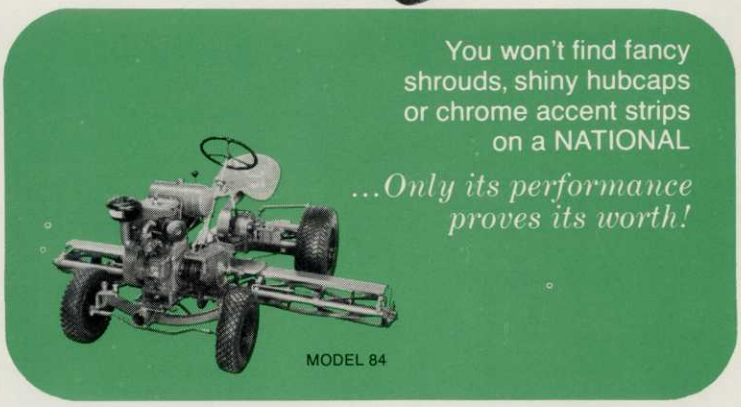

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For More Details Circle (121) on Reply Card

GYPSY MOTH *(from page 24)*

forest entomologist James Nichols, refoliation could range up to one million acres in Pennsylvania alone this year. This compares with 92,000 acres in 1971 and 404,000 acres last year in the state. Other northeastern in control specialists foresee similar problems in their states.

Agricultural scientists and forest researchers have been working to devise new weapons in the war on this major shade and forest tree pest. Imidan, used successfully for several years in the fruit and shade tree field, is the latest aid to entomologists and arborists in their fight against gypsy moth.

This new and environmentally safe compound has been approved for use against gypsy moth as well as elm spanworm and cankerworm, two other destructive tree insects. It is a biodegradeable insecticide that has lower toxicity to man and animals than most other materials.

The product is relatively non-toxic to beneficial predators, including various species of mites, thrips, beetles and flies. It fits into the enviromental mix of natural and selective insect control techniques needed to contain gypsy moths and other destructive insects.

Apple tree in residential Connecticut shows work of Gypsy Moth larvae last season.

The potential destructiveness of gypsy moth this year, scientists agree, is an acute problem. They point to the fact that **a single two-inch worm can devour a square foot of leaf surface in 24 hours.** With each egg mass capable of hatching out a thousand larvae from as many as 2,000 egg masses per acre, the gypsy moth presents a clear threat to forest, park, recreational and residential areas.

A survey of leading specialists involved in the gypsy moth battle in the northeast reveals both the severity of the problem and the potentials for success in the fight.

Dr. John Anderson, state entomologist at the Connecticut Agricultural Experiment Station has followed the battle for a number of years.

He reports that in 1972 a total of 514,000 acres were defoliated in Connecticut, a slight reduction from the 655,000 acres lost in 1971. He

(continued on page 60)

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Don't Lose Your Turf To Leafspot

WHAT'S the number one turfgrass disease of the cool season grasses? Leafspot! Nearly every superintendent has experienced this sickly yellow disease on his course, grounds, park or cemetery turfgrass.

Carl Hopphan and Carl Grassl are no exception. As superintendent of the Aurora Country Club, Aurora, Ill. and Park Ridge Country Club, Park Ridge, Ill., respectively, both consider leafspot their number one disease problem. Their battle to protect turf rages from first thaw to snowfall. Each has found that the best defensive plan of action involves the use of proven environmental protection chemicals and sound management practices.

Hopphan sprays greens as early as February, reducing the amount of "Helminth" that has overwintered before it becomes active. By spraying while the ground is still frozen, Hopphan doesn't gamble on applying fungicides when the turf is soft and easily damaged by tractor tires.

"I spray the fairways almost as early as the greens," says Hopphan. "I get out there before the conditions are right for 'Helminth'. We shoot for four sprayings on the fairways before June 1."

Grassl also aims for four applications of fungicide on his fairways during the critical leafspot period. Both men have centered their disease control programs around Acti-dione Ferrated or Acti-dione TGF for specific control of *Helminthosporium* and alternate with other fungicides in their routine spraying program throughout the year.

Hopphan sprays greens and tees weekly through mid-October. Then he cuts spraying to a monthly rate until snowfall. Fairways are sprayed monthly at Aurora.

Grassl sprays greens every seven days and fairways twice monthly. He supplements his program during stress periods with extra applications on problem areas and continues his program into early winter.

"You can't forget your program after Labor Day," says Hopphan. "By spraying late into the fall, we eliminate quite a bit of 'Helminth' that would otherwise overwinter."

Grassl adds, "Why let the grass come back in the spring weakened from leafspot? A late spraying in the fall and early application in the spring will more than pay for itself in healthy turf."

Timing of fungicide application is important to both men. They spray greens on Fridays to "brace" the turf for the stress of weekend golf traffic.

These turf managers are convinced their programs are worth the cost of the fungicide. "No superintendent hesitates about the cost of fungicide treatments when he has a severe outbreak on his course," says Grassl, "so one should consider investment in a complete preventive maintenance program and eliminate the cost and anxiety of having to treat flare-ups."

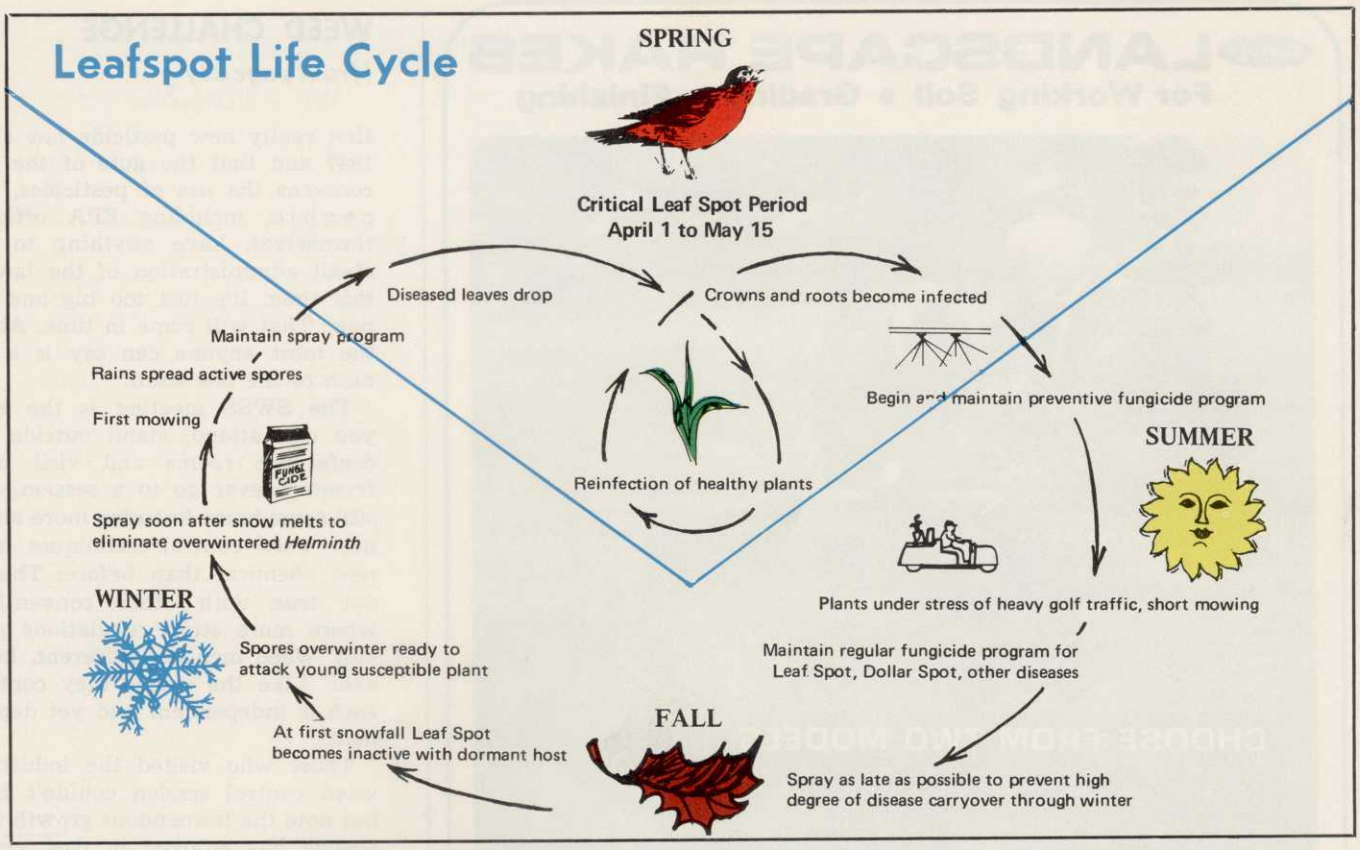
"I went to a new program five years ago," says Hopphan, "and my fungicide costs have gone up about ⅓. But I'd have been willing to double it for the control I have now. Fungicides are really the least expensive item in a total turf disease management program."

Both superintendents fertilize with low levels of nitrogen. High amounts of N make the grasses more succulent and therefore more susceptible to fungal infection. Extra N also makes for rapid top growth which is not necessarily needed in established stands.

"Some turf managers confuse leafspot symptoms with nitrogen deficiency," says Hopphan, whose course is predominantly bluegrass. "So when they add more N, they actually compound the problem instead of solve it. After nitrogen fertilizer is applied, the turf responds with a lush top growth. But, at the base of the plant. 'Helminth' is working on the older dead leaf tissue."

Hopphan is also conducting an arsenical program for the elimination of Poa annua at Aurora and says that the low amounts of N help

Carl Hopphan, superintendent, Aurora Country Club, Aurora, Ill. uses Acti-dione to control leafspot.



control the Poa since it requires high amounts of N to survive. With his arsenical-low nitrogen program, Hopphan has reduced his Poa population from 50 percent to less than 10 percent.

Hopphan applies fertilizer once in the spring and twice in the fall. His fertilizer plan is based on applying two pounds of nitrogen and six pounds of potash per 1,000 square feet. Phosphorous is omitted because it interferes with the action of the arsenicals.

Grassl's Park Ridge bentgrass fairways receive complete fertilizer applications totaling 2.5-1.75-1.0 pounds. The nitrogen-phosphorus-potassium mix applied to greens is 3.5-0.5-1.63 pounds per 1,000 square feet during the year.

The two men differ widely on turfgrass irrigation practices because of the differences in their grasses. Grassl sprinkles his bentgrass lightly every evening while Hopphan waters heavily three or four times per season for the best results on his bluegrass. Both, however, are careful to avoid standing water on poorly "ventilated" areas of their course since moisture and excessive humidity are conducive to leafspot development.

Grassl mows greens daily and

(continued on page 34)

Carl Grassl, superintendent, Park Ridge Country Club, Park Ridge, Ill. sprays greens every 7 days for leafspot.

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WEED CHALLENGE

(from page 23)

first really new pesticide law since 1947 and that the guts of the law concerns the use of pesticides, few people, including EPA officials themselves, have anything to say about administration of the law at this time. It's just too big and too new. That will come in time. About the most anyone can say is a rehash of the law itself.

The SWSS meeting is the kind you can attend, stand outside the conference rooms and visit with friends, never go to a session, and still come home knowing more about new weed control techniques or a new chemical than before. This is not true with other conventions where more strict regulations prevail. Weed men are different, however. Like the weeds they control, each is independent and yet dependent.

Those who visited the industrial weed control session couldn't help but note the tremendous growth this session has enjoyed in past years. More and more interest in industrial weed control has prompted expanded programming at SWSS. This year's session lasted one and one-half days. Here's a quick rundown on some of the papers:

B. C. Byrd of Dow Chemical Company spoke on vegetation control from Tordon picloram and phenoxy herbicide combinations in invert emulsions. He said that while 2,4-D and 2,4,5-T esters in combination have good effect there has been a rapid resurgence of conifers. Retreatment has been necessary to control collar resprouting of cherry, maple, locust, sassafras and persimmon. But by adding Tordon to the invert emulsion control can be achieved. In addition, the combination controlled white oak.

The Kansas City Southern Railroad is a mighty good road, according to William Crabaugh, Servitron, Kansas City, but when Don Telge of Velsicol Chemical Corporation finished his presentation, the railway was even better. Telge reported on his investigation of the weed control program. Previously the problem was not getting the control desired for the number of dollars spent. Crabaugh and Telge evaluated the vegetation problems. They decided to use Hyvar X and MSMA to control grasses and Banvel and 2,4-D for weeds and vines. They further decreased application costs

(continued on page 40)

Get rid of unwanted green growth before it cuts into your profits.

The weed onslaught is just about universal.

An expensive headache.

For utilities, railroads, highway departments, the petroleum industry and industry in general.

But there is a way to control that costly green tide—with Tandex® herbicide.

It's a urea-carbamate compound that gives outstanding extended control over a range of weeds and grasses.

But it's more than weed control.

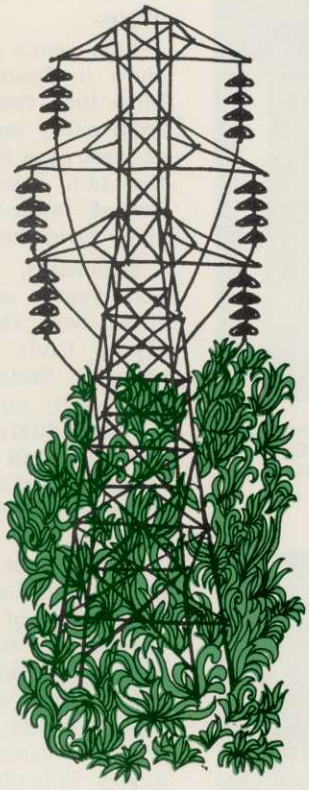
It's brush control, too. If you've got to get rid of really tough brush and woody vines, Tandex gets the job done.

You can spray Tandex or apply it in dry granular form.

Either way you use it, you'll control that costly green tide.

FOR INDUSTRY

FOR RAILROADS



FOR UTILITIES

FOR ROADS

TANDEX HERBICIDE

INDUSTRIAL CHEMICALS DEPT.
NIAGARA CHEMICAL DIVISION
MIDDLEPORT, NEW YORK

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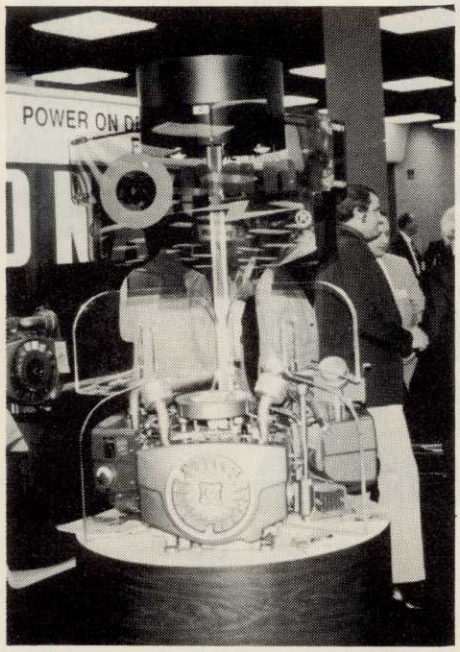
For More Details Circle (152) on Reply Card

Greatest Spectacle In Commercial Turfgrass

GCSAA International Turfgrass Conference And Show

Roger J. Thomas, marketing manager, turf equipment, Jacobsen Mfg. Co., discusses noise levels and golf maintenance.



Onan displayed three new engines this year. Don Halverson, sales promotion, talks with superintendents.

THE International Turfgrass Conference and Show is to commercial turfgrass what the Indianapolis 500 is to racing. Each is at the zenith. Golf course superintendents and race drivers respectively find the greatest spectacle on turf or in racing has a super-attractive force. You just can't stay away from these expos.

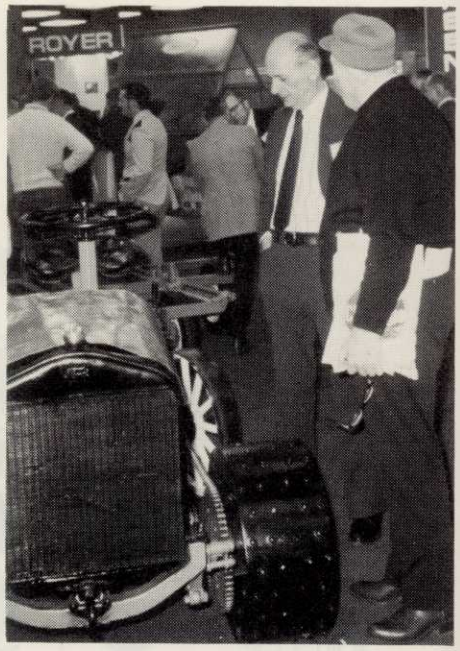
This year's January meeting and show in Boston was no exception. More than 4200 members and guests from every state in the nation and at least nine foreign countries made the 44th annual International the largest attended conference and show in history.

Exhibitors, taking a cue, from last year's enthusiastic reception, filled both floors of the John B. Hynes Civic Auditorium to near capacity. Statistics show that there was nearly one exhibitor for every member attending. Equipment, chemicals and services of every description dazzled and tantalized even the most sophisticated superintendents.

The big gala is the annual conclave of the Golf Course Superintendents Association of America. Theme for the meeting was "The Golf Course Superintendent And Changing Times." And with one possible exception all conference speakers were active members of the Green Industry. This pleasant departure from the big name speakers of past conferences gave a warm informality to the meeting which superintendents generally favored. More than one superintendent remarked that executive secretary Conrad Scheetz, the executive group and the host committee had put together a program tailored to the needs on the course.

In his opening address, Robert V. Mitchell, GCSAA president, put the size of the golf course business in proper perspective. "Current estimated capital invested in golf facilities is a staggering $3.3 billion and a conservative estimate of total spending on such related items as golf

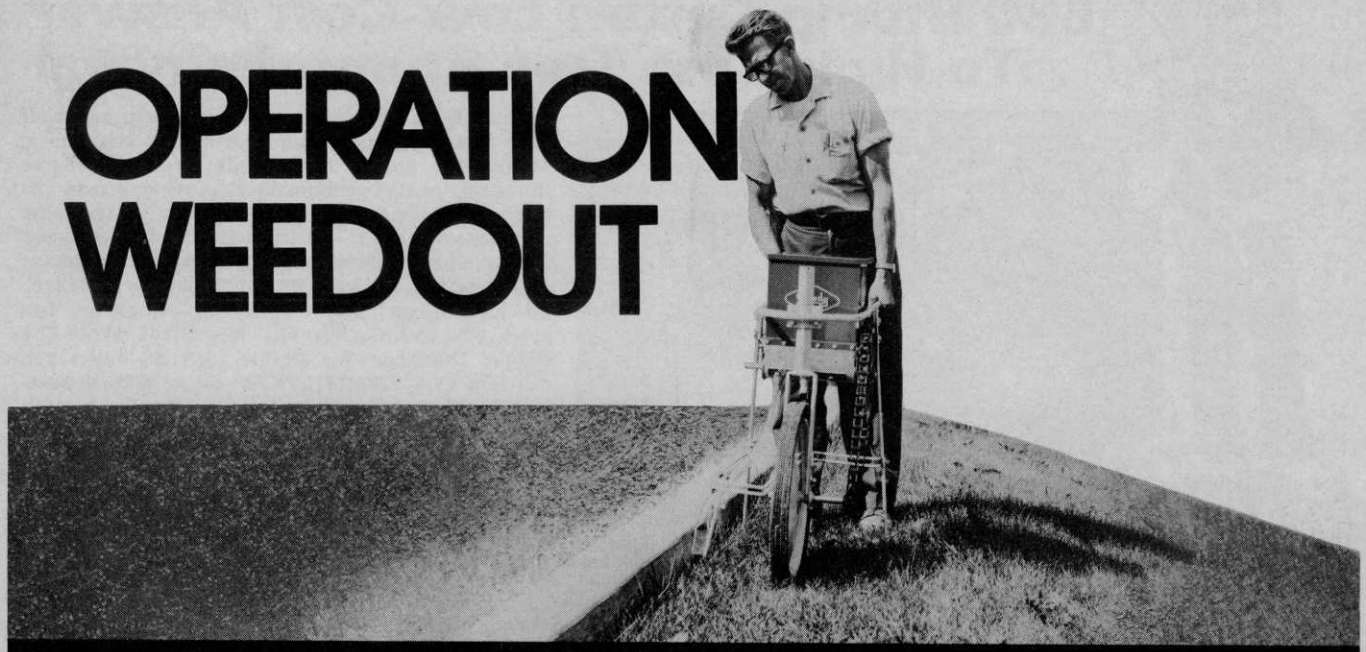
(continued on page 36)



This early model turf tractor by Ford brings memories to these exhibitors. More than 4200 people attended the show.

GCSAA past president John J. Spodnik tells superintendents about the Occupational Safety and Health Act.

OPERATION WEEDOUT



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GET THE JUMP ON SPRING WEEDS

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You need CASORON® herbicide.

CASORON is a selective herbicide that knocks out over 40 tough weeds and grasses, and perennial weeds like Quackgrass, Canada Thistle, Artemisia and many others.

And it works best in the fall when you really should start your weed control program. There's more time, more equipment available, and you reduce weed control labor needs during busy spring months.

Casoron is available in an easy-to-use granule that provides a wide margin of safety to both man and plants. It won't leach laterally, and you don't have to worry about soil residues.

This fall give our CASORON OPERATION WEED OUT a try . . . come spring you'll be happy you did.

For information mail the coupon below, or write: THOMPSON-HAYWARD CHEMICAL COMPANY, P. O. Box 2383, Kansas City, Kansas 66110.

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Colorful brochure now available FREE. Simply mail this coupon. We'll rush you your copy.

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Company _____

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630 Stump Cutter: Low-Cost Answer To High-Cost Tree Stump Removal

630 Stump Cutter — Low-cost high production unit. Ideal for contractors and municipalities with restricted equipment budget. Easy to transport — hitches to any car, truck, tractor or jeep. Can operate without towing vehicle.

Looking for a low-cost method of stump removal? Take a look at The Diggin' Dutchman's economical Model 630 Stump Cutter from Vermeer. Saves thousands of dollars annually because one man can remove the largest stump in minutes. No chopping . . . no sawing . . . no hand labor. A high speed cutting wheel does all the work; chews out stumps 6" below the surface. 36" width lets it "squeeze" into hard-to-reach areas—backyards, cemeteries, thru gates, next to buildings, etc. Interested? Write The Diggin' Dutchman for all the facts or, better yet, call him (515/628-3141) NOW for a FREE demonstration of any Vermeer machine. It's the world's most complete line. Vermeer Manufacturing Co., 7203 New Sharon Road, Pella, Iowa 50219.

THE DIGGIN' DUTCHMAN
VERMEER TREE EQUIPMENT DIVISION

For More Details Circle (102) on Reply Card

LEAFSPOT *(from page 29)*

tees three times each week to keep from removing too much of the plant at a time. By not scalping the plant, it is under considerably less stress and therefore less susceptible to leafspot in the early spring and fall.

Hopphan's fast-growing bluegrass fairways are clipped every day. "We never mow over 15 percent of the plant," says Hopphan, "Daily mowing makes the bluegrass grow lower and gives better ball height as well as cutting down the chances for leafspot and other fungi infection."

Leaf Spot is not restricted to bluegrass and bentgrass turf. It strikes almost all types of turfgrasses and special care should be taken to seed a wide range of resistant varieties for best disease prevention insurance.

All recognized turf management practices can play a role in prevention of leafspot and other fungal diseases. Fertilization, disease control, variety selection, mowing, and irrigation are interrelated. Each must be an integral part of the entire turf management program. A superintendent who manages these "tools" will find his turfgrass in better condition for play. Effective management of a disease control program has paid increased benefits to Hopphan and Grassl. And environmental protection chemicals such as Acti-dione are helping other turf managers promote superior turfgrass culture on their courses. □

Grassl battles leafspot from first thaw to snowfall.

What Is Leafspot?

Because leaf spot often goes undetected until most of the damage is done, it is important for golf course superintendents and other turf managers to initiate a total preventive control program against this common turfgrass disease.

The leafspot causing fungi are host-specific pathogens, each attacking only certain non-resistant varieties of grasses. If the turf manager has sown a diverse seed mixture, the disease will likely attack only one type of grass and the rest will remain healthy. This is the reason that the disease often goes unnoticed until severe thinning of a particular grass variety has occurred.

Leafspot is caused by several species of the *Helminthosporium* fungus. *H. Vagans* is the major causal agent in bluegrass turf of the northeast while *H. sorokinianum* is prevalent in the central states. On bentgrass, *H. erythrospilum* and *H. sorokinianum* are in central areas and *H. giganteum* is primarily confined to southern localities. Although the species vary, the symptoms, life cycles and results are similar.

The fungi attack the older lower leaves and basal sheaths and stems. Dark brown or purple spots appear first and "choke off" nutrients to the upper leaves, turning them yellow. The grass may die and severe thinning will result, allowing weeds a foothold. Frequently, the turf manager will not notice the damage until thinning has occurred and the disease itself has subsided. In these cases, it is a common mistake to blame the damage on drought or weed encroachment.

Leafspot is most likely to occur between April 1 and May 15 when temperatures are cool and the turf is moist. It then appears again in the fall between September and November. Grasses are coming out of winter or hot sumer dormancy at this time and are under stress, making them especially susceptible to the disease. *Helminthosporium* is present year-round, however, and can cause damage during cool, wet periods of the summer and fall.

Due to an advance in tree therapy developed by Lowden, Inc., many selected diseased American Elm trees can now be saved. Initiated in 1955, our antibiotic injections have resulted in the successful cure* of many diseased Elm trees. Now this treatment of Dutch Elm Disease is to be made more widely available to Elm tree owners at reasonable cost.

The treatment consists of the injection of an antibiotic directly into the trunk of the diseased tree with booster shots later. The antibiotic moves quickly throughout the tree, attacks the disease fungus, and is then absorbed within the tree. The materials and the process are safe for people, trees, and environment.

A limited number of diseased Elms will be selected for treatment under an experimental permit this year. If your diseased tree is accepted for our applied research program, the probability of successful treatment is very high. Leading arborists in New England are being chosen to further explain our new therapy and review your Elms.

Programming and organizing treatments to treat specific Elms in your area must be scheduled soon. An early review of the tree allows us to determine the degree of infection and thus the possibilities of saving the tree. These procedures must be carried out as soon as possible, so that therapeutic injections can be made during the 1973 growing season. Our detailed brochure, entitled "A Chemotherapeutic Experimental Program for a Cure of Dutch Elm Disease," will be forwarded to you upon receipt of the coupon. Please act promptly.

Write: Lowden, Inc., 16 Franklin Street, Needham Heights, Massachusetts 02194.

*Cure—a therapeutic treatment that restores an Elm tree infected by Ceratocystis ulmi (as shown by laboratory culture), to a visibly healthy condition by reducing the growth of the fungus to an innocuous level or by completely eradicating the fungus.

LOWDEN

SAVE THE STATELY ELM. WRITE NOW.

Name _____

Address _____

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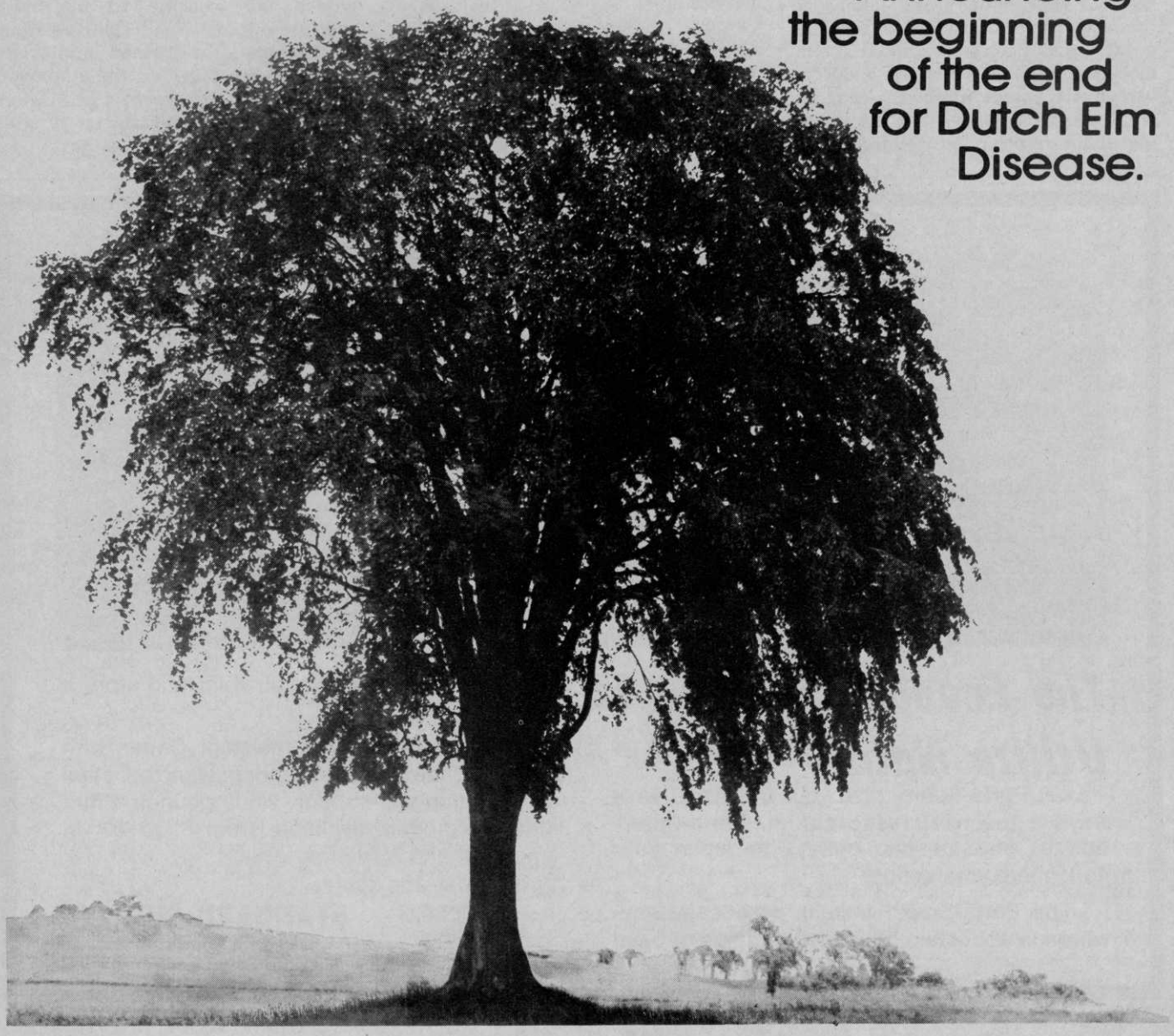
Announcing the beginning of the end for Dutch Elm Disease.



For More Details Circle (173) on Reply Card

GREATEST SPECTACLE
(from page 32)

balls, clubs, shoes and other dress items would exceed another $200 million," he said.

"Americans have been playing golf for more than 80 years, but the past decade has seen the game's greatest growth. During this period the number of courses increased 56 percent, and the number of golfers increased 123 percent."

Mitchell told delegates that 13 million Americans played golf during 1972 on 10,665 regulation courses, 974 par-threes and 298 executive-length courses. He said more than 250 regulation courses are scheduled for completion during 1973. GCSAA currently has over 3800 members in the U.S., Canada and other countries.

"Golfers are very sophisticated in their demand for the finest conditions," Mitchell concluded, "but they don't always appreciate the costs in time, money and labor. In the face of this contradiction, we will get the most from every dollar spent by keeping pace with the modern turf management methods. That is what this conference, with its sharing of information, educational programs, and exhibits will accomplish."

Table 1. Conference attendance continues high for the national turf conference staged by the GCSAA. Statistics for the past five years are:

	Boston, Mass. (1973)	Cincinnati, Ohio (1972)	Denver, Colorado (1971)	Huston, Texas (1970)	Miami Beach, Florida (1969)
Members	1198	1309	1076	1182	1078
Ladies	487	455	564	592	620
Guests	473	226	234	189	194
Greens Chairmen	87	250	214	211	506
One Day Admission	735	609	333	419	285
Turf Students	122	219	142	52	57
Exhibitors	1114	985	922	975	771
Total Registration	4216	4053	3485	3620	3511

In the sessions that followed superintendents were exposed to "changes" in new laws, putting green construction, turf management practices, automatic irrigation and in the demand for more superintendents.

One law affecting all courses is the Occupational Safety and Health Act of 1970 (OSHA). John J. Spodnik, GCASS past president and superintendent, Westfield Country Club, Westfield Center, Ohio, explained the purpose of the act. He said that there is a general feeling that OSHA has little to contribute to the field of turfgrass. But following his comprehensive review of the Act, it is easy to see that OSHA generally affects everyone.

Spodnik said that the employer is charged with furnishing each employee a safe place to work. This includes the wearing of approved safety equipment and the operation of machinery by trained employees only. He also said that the employer is obligated to keep records on employee injury and illness.

(continued on page 38)

The Economical Way To Utilize Nature

Let Porta-Span® give your trails and walk ways a touch of rustic charm. Porta-Span® bridges streams and gulleys to make your park more interesting.

The Porta-Span® installs practically anywhere in about two hours. No footings or base required. Move it when you want and store it during the winter.

Pre-treated weather-resistant Cedar with laminated arch beams and galvanized steel construction will support 2,500 pounds. Eight different models available from 8′ to 20′ in length, 3′ and 5′ widths.

Write today for details.

STANDARD MFG CO.
220 East Fourth Street
Cedar Falls, Iowa 50613

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Nine New VEGATROL™ Labels Have Been Added to the Line of BANVEL® Herbicides

The new full line of VEGATROL 2,4-Ds and 2,4,5-Ts, together with the BANVEL line of herbicides, lets you eliminate *selectively* tough brush, vines and broadleaf weeds that other herbicides often miss.

With this choice, the herbicide can be matched to type of vegetation, season, location, soil type, topography, environment, and other considerations. See your Velsicol representative or herbicide applicator for details.

Why Banvel is the 3 E's Herbicide

EFFICACY—BANVEL herbicide is systemic—it translocates throughout the entire plant killing leaves, stems and roots. Broad-spectrum BANVEL gets the hard-to-kill vegetation.

ECONOMY—Long-lasting BANVEL herbicide offers low cost. Often one application per season is all that is required for weed and vine control. Brush can be controlled for several growing seasons, with a 3- to 5-year root kill.

ECOLOGY—BANVEL has relatively short persistence in the soil. It has established tolerances for many food crops and milk. BANVEL is not harmful to animals eating foliage.

For information, fill in blanks below.

I am interested in controlling _____ on _____
(vegetation) (place)

Please send sample labels and information to:

Name _____

Title _____

Company _____

Street or Box _____

City _____ State _____ Zip _____

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A Subsidiary of Northwest Industries, Inc.

Velsicol Chemical Corporation
341 East Ohio Street
Chicago, Illinois 60611

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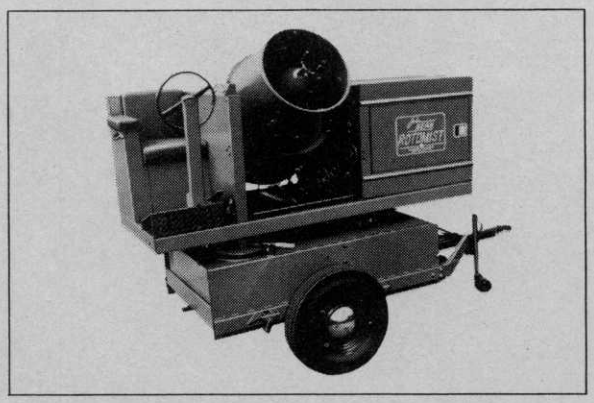

Get the tops in shade tree spraying

John Bean ROTOMIST sprayers have the power to put protection where it's needed most—in the tops of the trees. Straight-through air delivery, unrestricted by elbows, angled air passages or deflectors, breaks up droplets for uniform deposit of chemicals and carries them throughout the tree for full coverage, economically and fast. ☐ ROTOMIST sprayers are available in four basic models for all kinds of spraying jobs from trees and shrubs to mosquito and fly control, weed and brush spraying, windrowing leaves, spraying livestock, zoos and other areas where pesticides are needed. Find out how to save from 50 to 75% on equipment and labor with multi-purpose ROTOMIST. Ask your John Bean dealer now.

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AGRICULTURAL EQUIPMENT
JOHN BEAN
DIVISION
Jonesboro, Ark.—Ocoee, Fla.—San Jose, Calif.

For More Details Circle (162) on Reply Card

GREATEST SPECTACLE

(from page 36)

"Standards specifically for the golf course are almost impossible to prepare," he said, "but by April 28, 1973, a complete package of OSHA standards will be published."

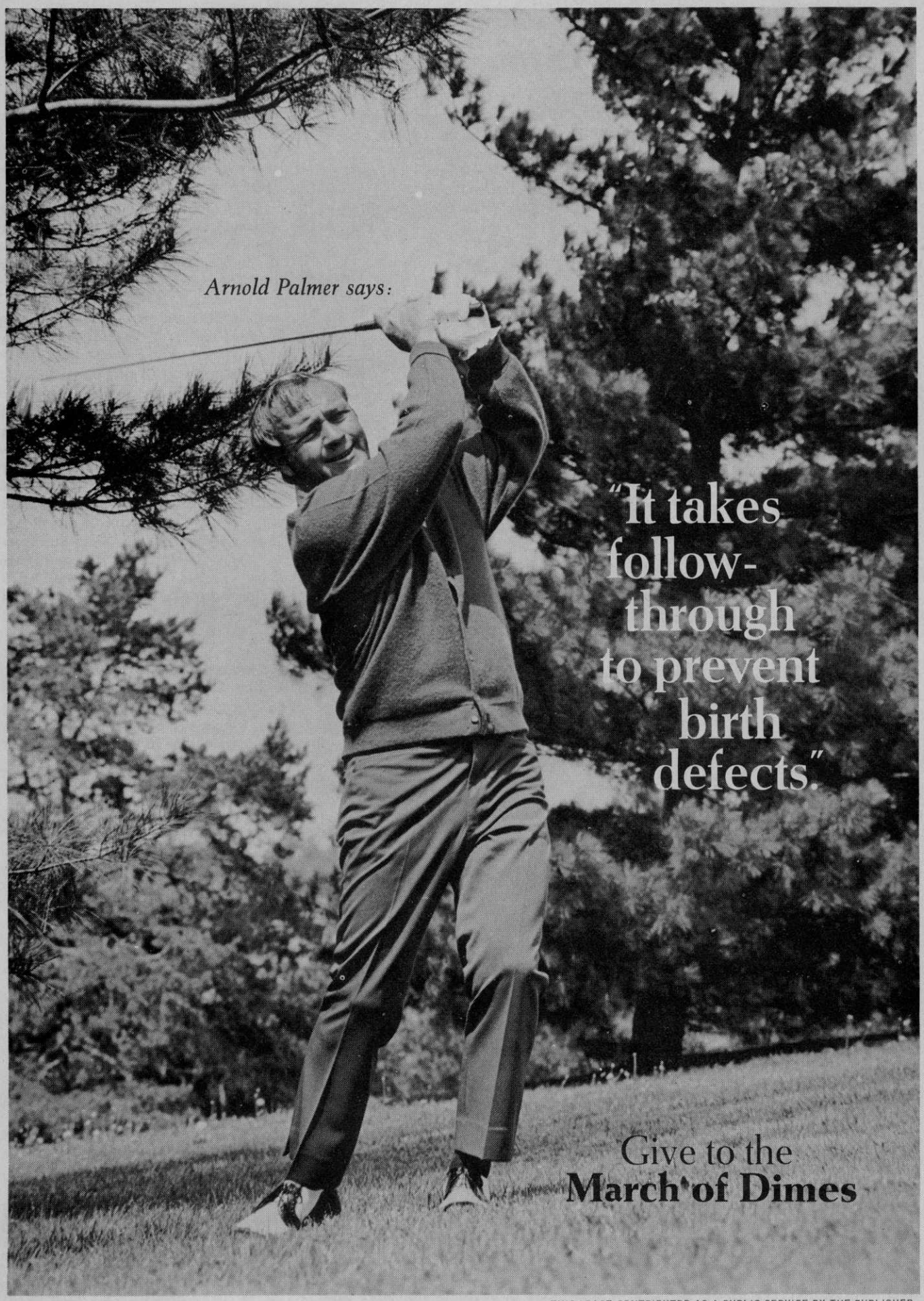
This well attended session next heard Roger J. Thomas, marketing manager, turf equipment, Jacobsen Manufacturing Company, discuss noise levels and golf maintenance operations. While it can be said that noise on a golf course is small in comparison to that of a stamping plant, noise in general has caught the ear of the Federal government. Thomas said that during the past decade people have become increasingly aware of noise in their daily living.

Clarke Fenimore, president, Ky-Inna Turf Supply, Louisville, Ky., (r) discusses sprayers and spray tanks with Bob Edwards, president Edwards Manufacturing Company, Ponca City, Okla. (l) and Bill Cook also of Edwards Mfg. Co.

Using decibels as the unit of measurement, the marketing manager said that 90 decibels is the maximum noise permitted for a worker during an eight hour day. He cited the decibel rating on a number of pieces of equipment, but also pointed out that its the aggregate of noise over the eight hour period that falls within the standard. Thus, a worker operating two pieces of equipment, each of which emits a noise level very near 90 dBA, may have a total combined decibel rating exceeding the federal limit. By law he would be forced to retire to a less noisy environment for the duration of an eight hour day.

Thomas advised superintendents to check the sound level of each piece of equipment used on a golf course. "Each superintendent will have to know the various sound levels," he said. This way you will know how to combine equipment sounds and still stay under the maximum noise level.

(continued on page 44)



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Doris Divot

We can't help you with Doris Divot.

But if you've got Poa annua, crabgrass, goosegrass, chickweed, we've got just what you need to get rid of them.

Chip-Cal Granular. It will control these weeds without harming your good grass. And it will allow overseeding with good perennial grasses at the same time you use the herbicide.

Chip-Cal Granular will keep your greens (and fairways) in the pink.

Chip-Cal® Granular.

From Rhodia Chipco Products.

Rhodia
CHIPMAN DIVISION

"Divots look better with the grass side up, mother!"

For More Details Circle (144) on Reply Card

WEED CHALLENGE *(from page 30)*

with the Accutrol spray system.

An interesting sidelight to this success story was reported. The same chemical mix and one spray rig was used throughout the rail line. When the area called for higher rates, they slowed the equipment ground speed down — 15 mph on the mainline, 10 mph in the yards and 5 mph on the bridges. Standard rate was 25 gallons mix per acre with the Accutrol system versus 50 gallons used in previous years. Results? They spent more money, but they feel that the initial control of vegetation is better. Next year they will be looking for a lower dollar cost per mile.

F. E. "Gene" Gonzalez of the Du Pont Company told professional weed men about Krovar I field test results. Krovar I is a 50-50 mix of bromacil and diuron. On the basis of small and large plots Gonzalez said that Krovar offers these advantages over either of the herbicides alone: less lateral movement, more control of late germinating seedlings, safer to root system of trees and ornamentals, superior control of perennial grasses, and others. He said the interest in Krovar I is good among weed specialists on highways, utilities and railroads.

Why does the Navy need weed control? Don R. Estes, special assistant for applied biology, southern division, Naval Facilities Engineering Command, says he's often asked that question. However, you quickly can understand that the Navy has a great need for vegetation control. Just as the Air Force needs many ground support persons to keep planes in the air, so the Navy has many thousands of acres of naval bases to support ships at sea. A naval base is like a city and it has weed control problems, too. Estes described his job in weed control activities and noted that the man with the hoe and brushook is being replaced by the man who is qualified to apply herbicides. He said that last year his office approved 2,570 gallons and 527,128 pounds of herbicide concentrates for application in the Sixth and Eighth Naval Districts.

Another area of special interest to the Southern Weed Science Society is aquatic weed control. Like the industrial section, this session has grown too. It is speculated that interest in this area will continue to grow as more and more people become aware that something can be done with the vegetation problems in southern waters. This year 10 papers were presented.

In Florida public waters, control efforts entail chemical, biological and mechanical measures, said J. Clarke Hudson, aquatic weed control specialist, Florida Department of Natural Resources. Currently, however, chemical control is our most efficient option. Yet it is the one under attack. This we have looked at new approaches to chemical weed control in the aquatic environment.

Hudson said that slow release pellets, inverts, foams and new techniques of application are being tested He concluded that future aquatic weed control will involve integrated systems, but chemicals will continue to play a vital role.

Dr. B. David Perkins, entomologist, agricultural research service, USDA then reported on the release of the mottled water hyacinth weevil

(continued on page 42)

◀ For more details on preceding page circle (154) on reply card

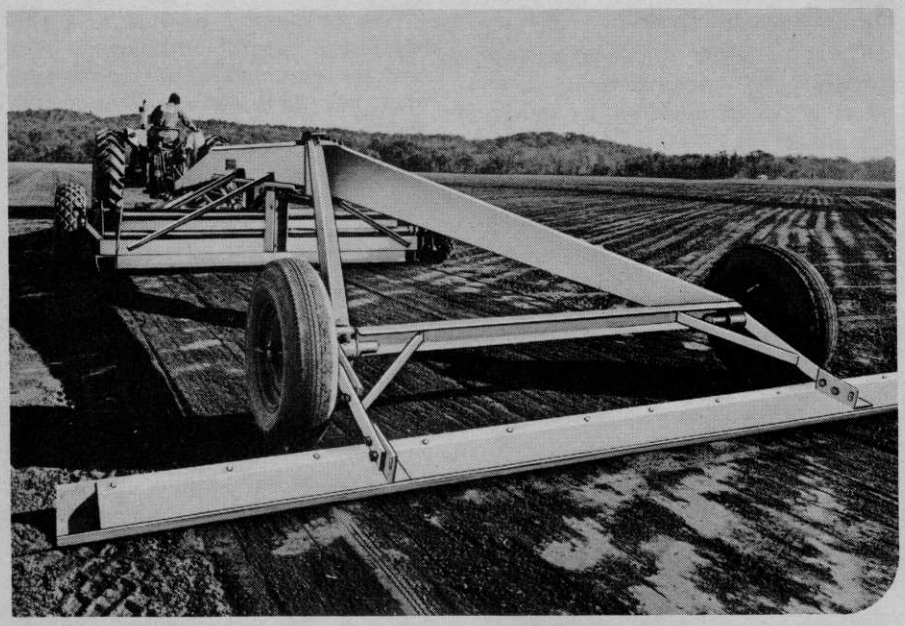


Table Top Surfaces

Leading sod farmers are using Eversman Automatic Land Levelers to make smooth, uniform seedbeds.

Also for golf courses, cemeteries, landscape architects.

Eversman Smoothers combine in one machine a field plane, open bottom scraper and a complete tillage tool for superior seedbed preparation. Smooth, level fields make possible even seeding, uniform germination with uniform turf maturity and faster, precision harvesting on fields that are easy on equipment.

The exclusive EVERSMAN Crank Axle.

The secret of the success of Eversman Land Levelers is the exclusive crank axle design. This principle is as simple as a child's teeter-totter. When one end goes up—the other goes down.

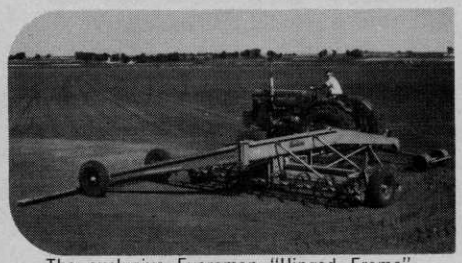
The leveler's main wheels are placed outside the cutting blade for a specific reason. These wheels serve as *feeler gauges*. They follow the contour of the field and automatically adjust the cutting blade to the correct depth—independently of the tractor driver.

When these gauge wheels come to a high spot or ridge, they ride up on top of the ridge and this forces the blade to lower and cut through the ridge. The soil is then carried along by the blade until the gauge wheels go into a hole or depression in the field, which forces the blade to raise and fill the depression.

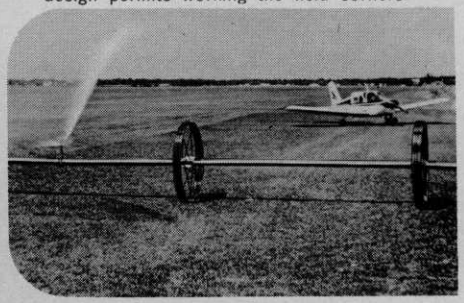
Eversman offers land smoothers in sizes and price ranges to accommodate your size operation and your regular wheel tractors, from 3-plow to 5-plow models. (Blade widths 9' or 12', lengths of 32' or 45'.) Write for folder which gives complete information.

Eversman Manufacturing Company, Dept. S21, Curtis & Fifth Streets, Denver, Colorado 80204

Eversman



The exclusive Eversman "Hinged Frame" design permits working the field corners.



Users Tell The Story

"We have been using Eversman levelers for over fifteen years," writes Dale Habenicht of H & E Sod Nursery, Inc., Tinley Park, Illinois. "Several other types were tried, but we've always found the Eversman to be the most satisfactory. They give us the smooth surface we are looking for—with easy maneuverability.

"The H & E Sod Nursery operates three farms consisting of 1300 acres. I commute between farms with my Cherokee 180 and use the sod fields that have been leveled by the Eversman for landing strips."

"We could not properly prepare our seedbeds without the Eversman Leveler," writes Parker Sherling, Manager of Princeton Turf Farms, Inc., Centreville, Maryland.

"In preparing our fields," Parker Sherling continues, "we instruct our operators that a field is not ready until a car can be driven in any direction at 40 miles per hour over the field. It's a joke, but we actually bring our fields to this condition.

"Our operators have also developed the skill where we can shape our drainage ditches with the same machines, thus saving the rental of additional equipment."

For More Details Circle (112) on Reply Card

WEED CHALLENGE
(from page 40)

in 13 locations in Floriad last August. He said that the insects have successfully completed their life cycle on water hyacinth and careful examination of the leaves has revealed eggs and developing larvae produced by this generation.

Dr. Robert W. Geiger, 3M Company spoke on a new algicide for filamentous algae and chara. He said that promising results from early tests indicate effective control of these problem weeds.

New officers of SWSS for 1973 are: Dr. Allen F. Wiese, Texas A&M University, USDA Southwestern Great Plains Research Center, Bushland, Texas, president; Dr. William G. Westmoreland, Ciba-Geigy Corporation, president-elect.

Turfgrass Weed Control Studied In NE Universities

New compounds and techniques of weed control in turfgrass continue to be major areas of study in many northeastern universities.

The evaluation of pre-emergence crabgrass herbicides goes on in an effort to discover effective materials which may be used more safely on a wider range of turfgrass species. The flexibility in time of application is also an important consideration.

In post-emergence applications made by John A. Jagschitz, assistant professor plant and soil science dept., University of Rhode Island, new compounds which can control the grass-like weed nutsedge are also being evaluated.

Chemicals which prevent seed head formation are also under test. This work is being done by T. L. Watschke, J. M. Duich and D. V. Waddington of the department of agronomy, Pennsylvania State University, University Park, Pa. These chemicals will prevent the spread of weeds which must reproduce by seed. Lawn grasses are perennial in nature and reproduce by the formation of underground or aboveground stems which produce new plants. Lawn grasses need not ever go to seed as must annual broadleaf and grassy weeds.

This is another method of plant population control without the immediate elimination of the weedy plant pest. It is a program approach and may someday supply another useful tool to the turf grower.

Hale Pump Line Expanded

To meet the growing demand for increased volume and pressure ranges in irrigation pump requirements, Hale Pumps, Conshohocken, Pa., has recently broadened its lines of irrigation pumps. This expansion includes important additions to its PTO and skid and trailer lines.

In the PTO group, Hale now has a full range of pumps to match the power of every tractor size — from 15 hp to 150 hp. These pumps are designed to meet any irrigation volume requirement — from 200 gpm to 2000 gpm at operating pressures from 150 psi through 200 psi.

Where large irrigation demands are a factor, the manufacturer now provides a complete line of skid and trailer mounted pumps capable of supplying volume needs from 550 gpm to 2700 gpm at pressures from 140 psi to 160 psi.

Our sprayers go un-noticed.

You'd never know they've been there. 'Til you see the spray results. Then you realize the performance capabilities of Myers TL10E2 Turf Sprayers. Plus their gentle nature. Standard equipped with dual "Pillows of Air" Terra Tires. For minimum ground compaction. Only 14.1 PSI. Standard 21′ boom also. For turf maintenance in parks, golf courses, etc. Engine powered. Du-All 10 GPM, 20 to 500 PSI spray pump for full range chemical applications. Also available – skid model with live hose reel for insect, weed and sanitary operations.

Myers

The name that works for you.

THE F. E. MYERS & BRO. CO. 400 ORANGE STREET • ASHLAND, OHIO 44805 — DIVISION OF McNEIL CORPORATION

For More Details Circle (174) on Reply Card

Agrico puts you eighteen up on the competition, before the competition even begins

Agrico Country Club fertilizers will help you get the most out of your golf course . . . the most people, the most wear, the most green. We've spent a lot of time developing a custom-tailored program for your golf course. We sincerely believe that it's the best there is. If you want a greener, thicker golf course, use Agrico. And you can stay eighteen up all year long.

Agrico™

One of the Williams Companies
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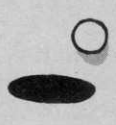
Tulsa, Oklahoma 74103



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IN HEAVY DUTY
COMMERCIAL MOWERS

GOODALL FOR THE '70'S

GOODALL
SELF-PROPELLED
Easy handling, professional design, finger tip power steering and turning, comes in 21", 24", 28", 32", 36" and big 52" cuts ups to 8 h.p. engine.

GOODALL
PUSH MOWER
Rugged, unbreakable steel handles, available in 18", 19", 20", 22" cuts, engine comes in 3.5 or 5.0 h.p.

GOODALL
EDGER-TRIMMER
Unbreakable steel handles, 3 h.p. engine, steel wheels on ball bearings, 10" cut.

THE TRUE PROFESSIONAL LINE
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Manufactured by BUNTON CO. WT-373

For information, write GOODALL DIVISION
1405 Bunton Rd., Louisville, Kentucky 40213. Phone (502) 459-3811
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GREATEST SPECTACLE

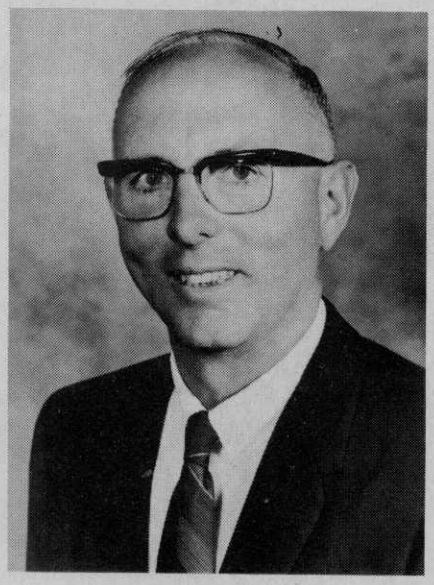
(from page 38)

He also suggested strongly that employees be subjected to hearing tests.

In the area of administrative control of noise, he offered these suggestions: 1. Don't operate equipment too near the edge of a course too early in the morning. It distracts adjacent landowners. 2. Don't use two pieces of high noise emitting equipment together. 3. Trees, bushes and other vegetation act as a noise barrier. 4. Keep equipment in good repair.

James L. Holmes, the Green Makers, Bryan, Texas expressed his views as a builder in changes affecting green construction. Noting that greens have been built quite far into the south which support excellent bentgrass turf, he said the key to a properly constructed green is in adequate infiltration, percolation, water retention and drainage.

Dr. R. E. Engel, professor, soils and crops department, Rutgers University spoke on "the effect of nitrogen fertilization on annual bluegrass encroachment in bentgrass. He feels the management practices of superintendents in relation to nitrogen use are in part responsible for the encroachment of annual bluegrass. He said that it has been shown that high rates of N often result in more annual bluegrass.



Clifford A. Wagoner, superintendent of Del Rio Golf and Country Club, Modesto, Calif. is the new GCSAA president.

"Experience gained from research trials has taught us one lesson on N fertilization of bentgrass turf," he remarked. "Namely, avoid any type of high N treatment that is likely to cause massive turf failure and open the turf to increased encroachment of annual bluegrass.

He offered these suggestions to superintendents: 1. Use no more N than necessary for satisfactory growth. 2. Slow, steady growth is best. This is best done with small and more frequent applications. Amount of clippings in optimum cool weather and color are good indicators of N need. 3. Establishment or re-establishment are the only place for more generous N programs on bentgrass.

Changes in automatic irrigation concepts from the manufacturer's point of view was the title of the presentaion by Ed Shoemaker, national sales manager, Rain Bird Manufacturing Corporation.

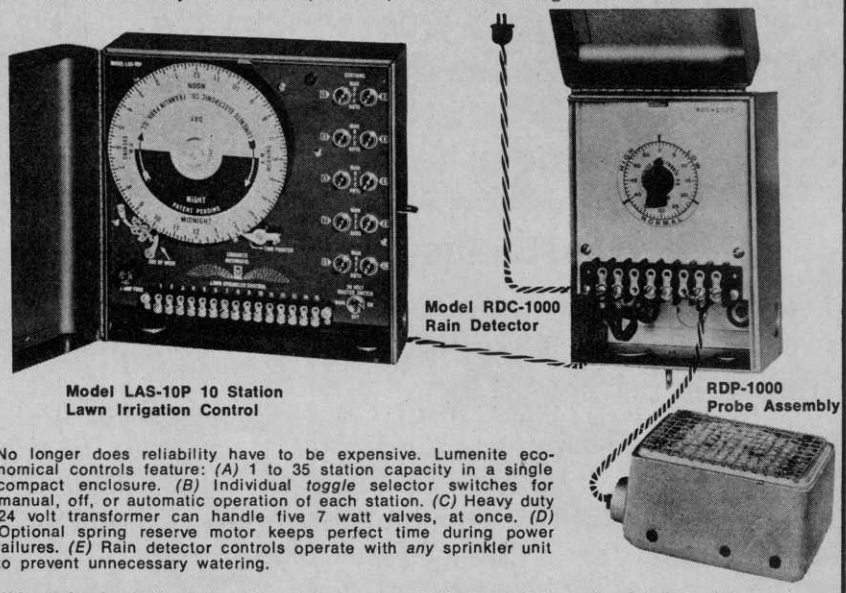
"As a marketing organization," he said, "We see ourselves helping you stay out of the traps and pitfalls in a major undertaking such as the construction of an automatic irrigation system." He said these traps can be avoided with the system has the proper planning: 1. Inadequate budget: 2. The free plan; 3. Custom designed equipment; 4. Do it yourself; 5. The low bid; 6. Cut now — pay later; 7. Push button operation.

Speaking about the changes in the demand for superintendents, Gregory W. Graham, turfgrass manage-

(continued on page 76)

FINALLY! AT LAST! IT'S HAPPENED!

Lumenite, with 35 years experience in the timing control and liquid sensing fields, offers a truly economical, deluxe, line of lawn irrigation controls.



No longer does reliability have to be expensive. Lumenite economical controls feature: *(A)* 1 to 35 station capacity in a single compact enclosure. *(B)* Individual *toggle* selector switches for manual, off, or automatic operation of each station. *(C)* Heavy duty 24 volt transformer can handle five 7 watt valves, at once. *(D)* Optional spring reserve motor keeps perfect time during power failures. *(E)* Rain detector controls operate with *any* sprinkler unit to prevent unnecessary watering.

Write today for further information and the name of the nearest Lumenite distributor.*

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ELECTRONIC COMPANY
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PHONE (312) 455-1450
*Protected areas are still open for qualified distributors.

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This is the STIHL SG-17 Mist-Blower that Everyone is Talking About!

It blows, dusts and sprays dry and liquid chemicals, etc. to kill weeds and insects; to fight plant and tree diseases and to perform many related jobs in the garden, on the farm and in nurseries.

It has also proven very versatile for spraying at construction jobs, blowing leaves and debris in sport stadiums, parks and recreation areas, in spraying cattle and dairy buildings and many new uses are being discovered every day.

You'll be amazed at its perfect balance and ease of handling and also at its very, very easy price. See for yourself. It's a STIHL!

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WALKING THATCHER

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18″ Thatching Width

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Model 110
Pulls Behind All Riding Mowers and Garden Tractors

E-Z RAKE
GIVES YOU A CHOICE!

VERSATILE WALKING THATCHER propels itself. Features positive gear-and-chain tine drive. Lightweight, folding handles, make storage and transport easy. Counterbalanced leg rests, 4 wheels, make handling easy. Lifts thatch efficiently, and thoroughly. 100% steel construction for long life—simple, minimum maintenance!

PULL THATCHER has 38″ thatching width. Attaches quickly, easily behind all riding mowers and garden tractors. Powered by 3 h.p. gear reduction engine.

All E-Z RAKE Thatchers feature tough sleeved spring tines with positive raking action. Bolt-on tines deflect—minimize breakage—are easily and quickly replaced when necessary.

WRITE FOR DETAILS!

E-Z RAKE, INC. LEBANON, INDIANA 46052

Manufacturers of—
E-Z Walking Thatches • E-Z Front End Thatchers
E-Z Pull Thatchers • Carts and Accessories
E-Z Vac Vacuum Sweepers and Attachments

—meeting dates—

Iowa Golf Course Superintendents Association, 39th annual turf conference, Ramada Inn, Waterloo, Ia., March 12-14.

Turfgrass Conference, North Carolina State University, Faculty Club, March 13-14.

Western Society of Weed Science, annual meeting, Ridpath Hotel, Spokane, Wash., Mar. 13-15.

National Conservation Tillage Conference, sponsored by the Soil Conservation Society of America, the American Society of Agronomy, the American Society of Agricultural Engineers and the National Association of Conservation Districts, Hotel Fort Des Moines, Des Moines, Ia., March 28-30.

Arizona Turfgrass Conference, Plaza International Hotel, Tucson, Ariz., April 4-5.

Atlantic Provinces Turfgrass Conference and Exposition, Halifax, N.S., Canada, April 9-10.

Annual Spring Institute (Horticulture), sponsored by the University of California agricultural extension and the Southern California Turfgrass Council, Quality Inn, 616 Convention Way, Anaheim, Calif., April 18-19.

Florida Turf-Grass Trade Show and Turf Management Clinics, Curtis Hixon Convention Hall and Manger Motor Inn, Tampa, Fla., April 29-May 2.

Pacific Seedsmen's Association, annual meeting, SS Queen Mary, Long Beach, Calif., April 29-May 2.

Central Plains Turfgrass Field Day, Minor Park, Kansas City, Mo., May 8.

Florida Nurserymen and Growers Association, The Breakers Hotel, Palm Beach, Fla., May 17-19.

Western Chapter, International Shade Tree Conference, annual meeting, Hotel Utah, Salt Lake City, Utah, June 17-20.

International Turfgrass Conference, 2nd annual, Virginia Polytechnic Institute and State University, Blacksburg, Va. June 19-21.

American Association of Nurserymen, Radisson Hotel, Minneapolis, Minn., July 14-18.

Hyacinth Control Society, Hotel Monteleon, New Orleans, July 15-18.

American Sod Producers Association, annual meeting, Denver, Colo., July 16-19.

International Shade Tree Conference, 49th annual meeting, Sheraton-Boston Hotel, Boston, Mass., Aug. 12-16.

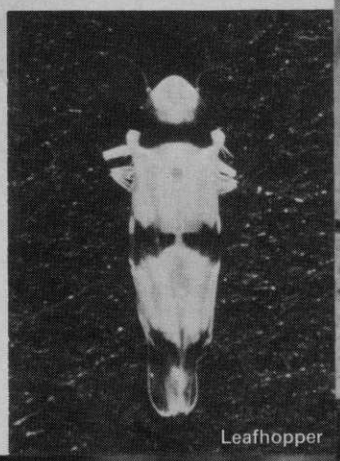
Industrial Weed Control Conference, 8th annual, Texas A&M University, College Station, Tex., Oct. 15-17.

Central Plains Turfgrass Conference, Manhattan, Kans., Oct. 17-19.

California Weed Conference, Woodlake Inn, Sacramento, Calif., Jan. 21-23.

Southern Weed Science Society, Sheraton Biltmore Hotel, Atlanta, Ga., Jan. 22-24.

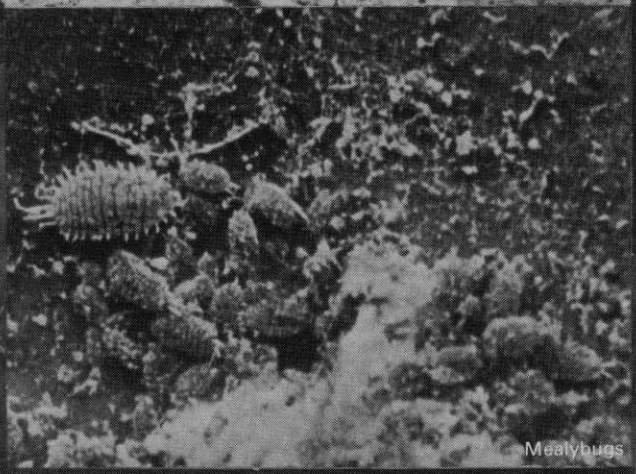
For More Details Circle (186) on Reply Card


Leafhopper

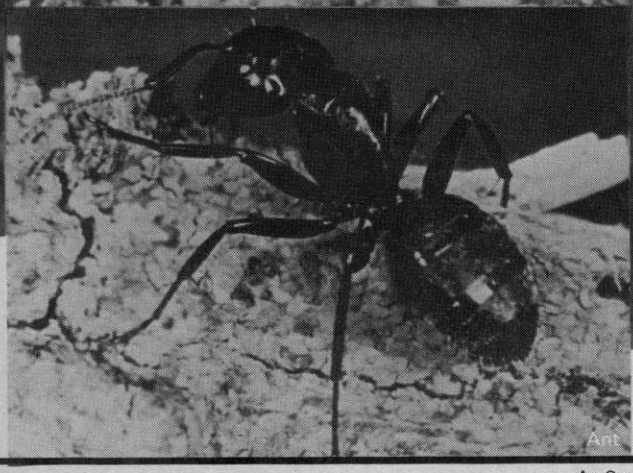
Grasshopper

Hairy chinch bug

Cutworm


Mealybugs

Bagworms


Ant

Ag-Organics Department, Midland, Michigan 48640

These are only seven of the turf and ornamental pests Dursban controls. If we had more space, we could show you another seven. Like sod webworms, brown dog ticks, earwigs and Hyperodes weevils in turf. Or ornamental plant pests like mites, spittlebugs, exposed thrips, white flies and many more. But our point is, DURSBAN* insecticide is the choice of professional lawn spraymen when they need to get the job done. DURSBAN insecticide is effective on a wide variety of insects—including resistant strains. And it's effective in a wide variety of applications. It's economical because a little goes a long way. It's non-phytotoxic, and it is biodegradable. So, if you haven't tried it yet, it's about time you did. Just remember to read the directions for use and follow the precautions for safe handling on the product label.

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DOW*

DOW CHEMICAL U.S.A.

For More Details Circle (168) on Reply Card

Clean ground under ball park bleachers is treated with Hyvar X. Area is easier to keep clean and tidy when weeds and grass are eliminated. A single treatment lasts a season.

Manicured lawns and ornamentals greet visitors at Ft. Dix, one of the largest military installations in the northeast.

HALT WEED ASSAULT *(from page 14)*

had been eliminated entirely at Fort Dix.

"Now we're able to maintain vegetation control under fences and around other obstacles such as sign posts and fire hydrants. So we can use tractor-driven gang mowers exclusively," says Haug. "Without these herbicides we would need at least two more men for mowing fence lines alone."

Haug relies on two basic chemical recipes to keep weeds in check. Areas near trees or high-value ornamental plantings are treated with a mixture of Simazine weed killer plus a con-

(continued on page 62)

TREES "IRON-SICK"?

TREE SYSTEMS *

MEDICAPS

Worth Over 400 Times Their Weight in Iron

New!!

Medicaps Trunk Injection For Fast Easy Charolais Remedy

ACCURATE
Premeasured, self-contained MEDICAPS "cartridges."

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Trees respond to MEDICAPS treatment in as little as 14 days. Tested by leading Universities.

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More efficient than soil or foliage applications. MEDICAPS efficiency means low cost with lasting results.

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Write today for additional information on MEDICAPS, and the name of your nearby MEDICAPS distributor.

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RED RIDER

THE THREE SEATER WITH TWENTY-THREE FEET!

- Seats Three Men Up Front
- Carries 23 cubic feet Out Back
- Also available in 8 and 10 H.P. models
- Simple Maintenance
- Completely Dependable

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● *Ask for Demonstration. Write for Information.*

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For More Details Circle (153) on Reply Card

Dacthal® drives 20 annual weeds off the course with one easy swing.

One application early in the spring. That's all it takes. Dacthal preemergence herbicide prevents 20 annual weeds from sprouting all season long. Problem weeds like carpetweed, chickweed, purslane and others. So you can devote time and manpower to more important work.

Dacthal doesn't stop there. It also drives out troublesome crabgrass and *Poa annua.* Hit'em in the spring. And follow through with Dacthal in late summer for control of *Poa annua* and other late-germinating weeds.

Over the years, Dacthal has proven to be the closest thing to worry-free weed control. It won't harm new grass when used as directed. Won't leach out with frequent waterings. And there's no problem of residue buildup in the soil.

TOTAL TURF CARE

Dacthal degrades, naturally, in one season. Just read and follow label directions.

You can even use Dacthal to keep the weeds out of flowers and shrubs. It's cleared for use on over 120 ornamentals. That's one more beauty of it.

This year, drive out weeds with Dacthal... the all-around favorite preemergence herbicide. Available in wettable powder or granules. Ask your supplier for more information or write: Agricultural Chemicals Division, Diamond Shamrock Chemical Company, 1100 Superior Avenue, Cleveland OH 44114.

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Interna

Our 2400A Lo-Boy:

Built for mowing– from the grass up.

And just what is a *mowing* tractor?

A good one is squat and compact, clings to slopes without slipping. It's nimble. Brakes, turns on its own axis and steers like a sports car.

It's geared for every speed from creep-mowing next to fences and obstacles up to nearly 20 mph highway transport. It's versatile – works with a rotary mower, ganged reels, or flail in the rear, and at the same time can handle a cutterbar with its side PTO.

And because grass just won't wait, it's built with the power and strength to get big mowing done in a hurry. Without breakdowns. With a minimum of maintenance.

That's a *mowing* tractor. That's our 46 hp 2400A Lo-Boy.

Your International dealer has all the exact specs, including 9 ft. turning radius; hydrostatic power steering; 8-4 synchromesh shift-on-the-go transmission with Hi-Lo range and straight-line shifting; independent rear PTO, side shaft optional; big 11-inch Dyna-Life® clutch; wet disc hydraulic brakes – a package no other mowing tractor on the market can match.

Phone your dealer soon and let him prove it on your own turf.

We keep getting better at our business to get more of your business.

And keep it.

INTERNATIONAL HARVESTER

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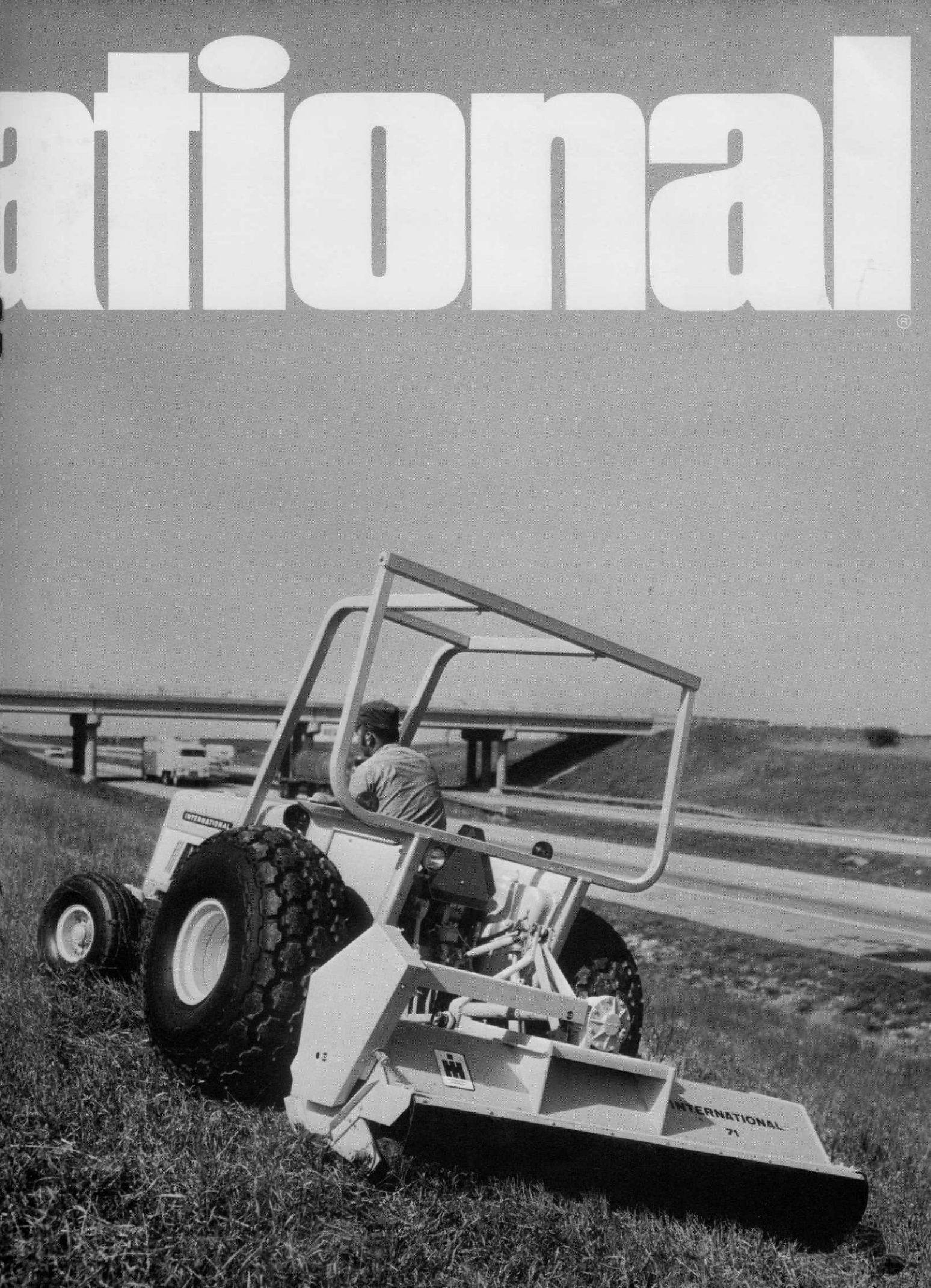
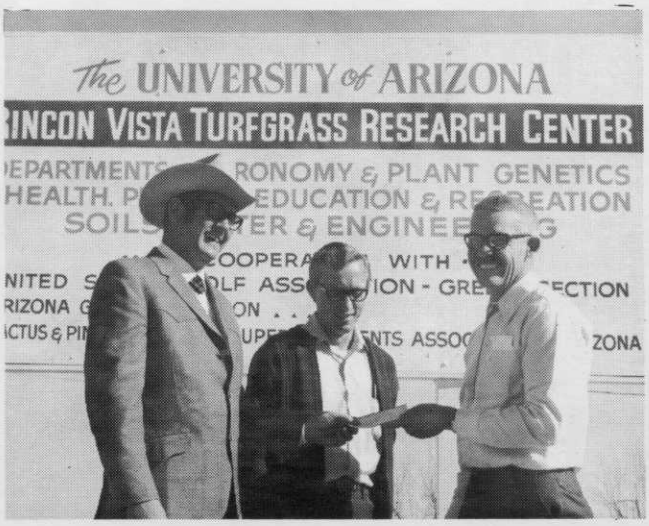
ational®





Investment In The Future—Bob Sanders (l) secretary-treasurer, Cactus and Pine Golf Course Superintendent's Association of Arizona presents a check for $400 to Dr. W. R. Kneebone, (r) department of agronomy and plant genetics, University of Arizona to support continuing turfgrass research. Presentation was made at the Rincon Vista Turfgrass Research Center in Tucson. Dr. Gordon V. Johnson (c) and Dr. Kneebone are in charge of the center's research programs.

Groundwork For Success — F. E. Myers & Bro. Co. salesmen recently underwent a two day seminar on marketing conducted by American Business Consultants, Inc., Clinton, N.J. Sales problems that had to be worked out through cooperative group effort stimulated the Myers force. In addition, goals were set, new products and tools explained and marketing strategy planned. All divisions of the company were represented.

Green Industry Newsmakers

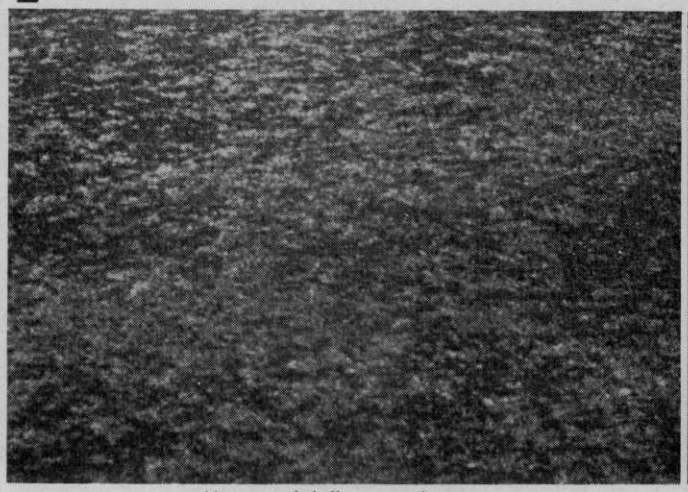
PEOPLE PLACES EVENTS

Here's the Ohio team that will lead the Ohio Nurserymens Association for 1973. Executive committee members are: (standing l-r) Eldon Studebaker, New Carlisle; Dale Manbeck, New Knoxville; Jack Goode, Circleville; Geid Stroombeck, North Madison; Larry Riegel, Maumee; and Ken Natorp, Cincinnati; (Seated) Peter Olmsted, Columbus, executive secretary; Robert Siebenthaler, Dayton, past president; William Thornton, Cincinnati, president; Edward Losely, Perry, vice-president; Elton M. Smith, extension specialist, landscape horticulture, Ohio State University.

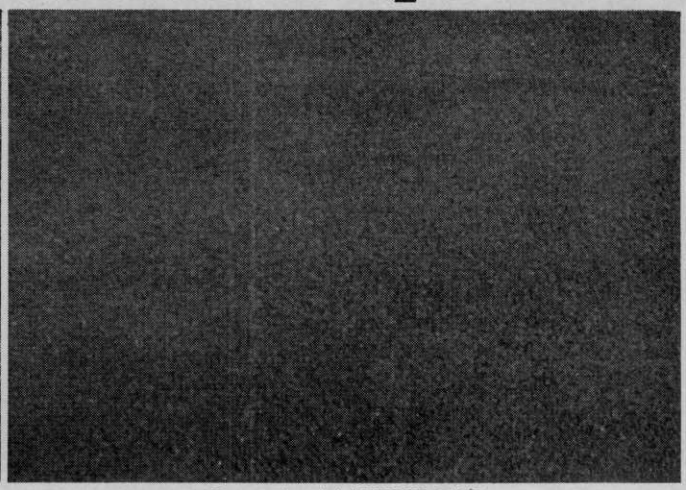
Hypro Division, Lear Siegler, Inc., recently honored one of its founders on his retirement. Harry J. Sadler, president, received a special commemorative degree given by Lear Siegler's education division. Incoming Hypro president Bernard A. Napier (r) makes the presentation. Looking on is Mrs. Sadler.

This is the team that sells the equipment that makes the dollars that pay the men that . . . Together briefly for the GCSAA convention and show in Boston, Hahn's North American marketing team rallies at the booth for a quick photo. Standing (l-r) are: Vollie Carr, field service manager; Mike Eason, southeastern USA regional manager; Wade Stith, western USA regional manager; Walt Dickinson, international marketing manager; Harry Dawson, northeastern USA regional manager.

When dollar spot hits, here's how systemic MERTECT® 140-F flowable saves your turf, time, and money.



Untreated dollar spot disease



Treated with MERTECT 140-F

These pictures show the kind of dollar spot control you get with flowable MERTECT 140-F. Even against cadmium-resistant strains. It also works well against brown patch and *Fusarium* patch.

And with its special advantages, MERTECT 140-F makes the performance picture look even better.

Being flowable, it saves you time in measuring and mixing. Handling is safer. Dispersion is more complete, so you get the right mixture for more effective results.

Since MERTECT 140-F is systemic, you also get away with fewer applications per season, thanks to its residual disease control. And it has a lower dosage rate than other fungicides, so you save there, too.

Just follow the label instructions. MERTECT 140-F is not phytotoxic to grasses when used as directed. Your Merck distributor has flowable MERTECT 140-F now. If you don't have his name, write us. Agricultural Products, Merck Chemical Division, Merck & Co., Inc., Rahway, N.J. 07065.

MERCK

MERTECT [2-(4-thiazolyl)benzimidazole] is a registered trademark of Merck & Co., Inc.

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Write or phone for literature & prices. Advise quantity.

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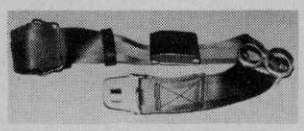

Developed by a Tree Man to MEET TREE MEN'S NEEDS!

STILL ONLY $17.98
From: P.D.I.
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Rutledge, Pa. 19070

THE RIGGIN'-BUDDY® ISN'T NEW ANYMORE . . . IT IS PROVEN!

Herd's TWO NEWEST BROADCASTERS

for the COMMERCIAL OPERATOR and HOMEOWNER

NEW 750
9.6 BU., 750 LB. CAPACITY FOR THE LARGER BROADCASTING JOBS

NEW GT-77
77 LB. CAPACITY FOR GARDEN TRACTORS

Write for catalog describing all seven HERD models

HERD SEEDER CO., INC.

P. O. BOX 448, DEPT. 117, LOGANSPORT, IND. 46947

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—insect report—

TREE INSECTS

CALIFORNIA FIVESPINED IPS
(Ips confusus)

CALIFORNIA: Hundreds of ornamental Monterey pine trees killed around bay area and into Santa Clara County. Some very large, old trees are dead or dying.

A GALL MIDGE
(Taxodiomyia cupressiananassa)

INDIANA: Galls of this species found under bald cypress trees *(Taxodium distichum)* in Warrick, Spencer, and Perry Counties December 7, 1972. These are new county records.

GYPSY MOTH
(Porthetria dispar)

MARYLAND: Five egg masses recovered near Hagerstown, Washington County, November 24, 1972. Egg masses also recovered near Darlington Harford County, December 6, 1972. These are new county records.

NANTUCKET PINE TIP MOTH
(Rhyacionia frustrana)

ALABAMA: One to 4 pupae per tip on 15-50 percent of all 6 to 8-foot pine trees along highway planting in Macon County.

WALKINGSTICK
(Diapheromera femorata)

TEXAS: Taken October 27, 1972, at Lufkin, Angelina County. This is a new county record.

INSECTS OF ORNAMENTALS

AN ARMORED SCALE
(Pseudaonidia paeoniae)

SOUTH CAROLINA: Light on azaleas at residence in Newberry County. This is a new county record.

EUONYMUS SCALE
(Unaspis euonymi)

SOUTH CAROLINA: Specimens taken from euonymus in Williamsburg County November 29, 1972. This is a new county record.

TEA SCALE
(Hemileuca oliviae)
(Fiorinia theae)

ALABAMA: All stages occurring on several hundred plants examined in Lee County during the week ending January 12. This scale continues to be the most important insect affecting camellia throughout State.

TURF INSECTS

RANGE CATERPILLAR

NEW MEXICO: Egg clusters light to heavy on native grass in Chaves and Lincoln Counties.

AN ARMORED SCALE
(Odonaspis saccharicaulis)

FLORIDA: Taken on pangolagrass *(Digitaria decumbens)* at Fort Drum, Okeechobee County, November 21, 1972. This is a new county record.

BENEFICIAL INSECTS

A LADY BEETLE
(Coleomegilla maculata)

MISSISSIPPI: Thousands of adults taken from bases of cottonwood trees in many Delta counties; confirmed from Washington, Sunflower, and Bolivar Counties. Also taken from ground trash, surrounding fields in Oktibbeha County.

it's a SPRAYING machine

it's a SEEDING machine

it's a FERTILIZING machine

it's a SPRIGGING machine

it's a MULCHING machine

it's a TIME SAVING machine

it's a MONEY SAVING machine

it's a . . .

HYDRO BOWIE MULCHER

There are
SO MANY WAYS
a Bowie
Hydro-Mulcher
can serve you

Bowie's exclusive
features give you
the capability
TO DO MORE

Models sized and
equipped for
ALL
REQUIREMENTS

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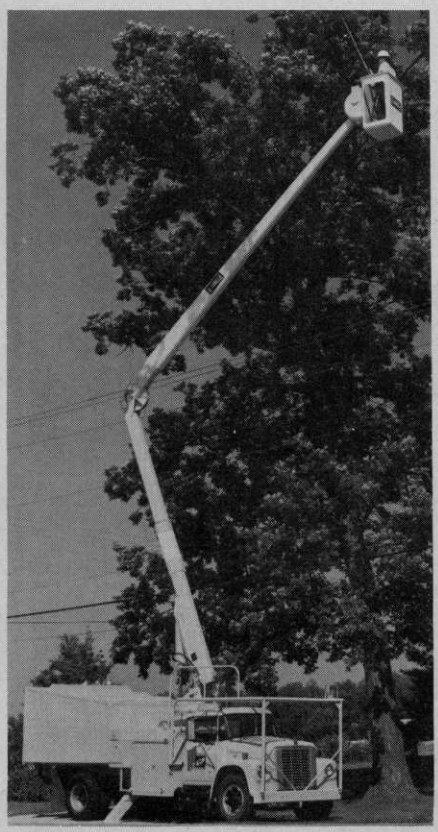

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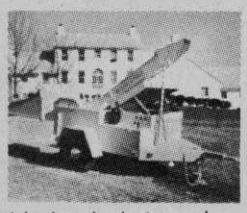

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Only the Wood/Chuck has really been built from the ground up as a chipper for heavy-duty use. It's modern, functional, no-nonsense design sets it apart. Above all, the Safety Test Wood/Chuck has that built-in Safety Test "Extra Measure" of dependability. You can rely on it to do a full day's work . . . day after day, year after year. Frankly, there are dozens of reasons why no other chipper compares with the Wood/Chuck. You owe it to yourself to get the full story from your Wood/Chuck representative or write Safety Test & Equipment Co., Inc., P.O. Drawer 400, Shelby, N. C. 28150. Tel. (704) 482-7346

Patrissi points to the excellent weed control around this marker. Mower operator need not mow closer than four inches. Hand trimming is virtually eliminated.

CHEMICAL TRIMMING *(from page 18)*

ground material near trees, shrubs or other valuable plants. On sloping terrain, for example, uneven weed control may result, especially if heavy rains follow application.

"Areas where people have planted flowers in the past are also noted," Patrissi says. "These areas are also left untreated."

A home-made spray rig is used at the Mount Saint Benedict cemeteries. Mounted on a ski, the unit fits neatly onto a Cushman maintenance vehicle or in the back of a small pickup. Similar manufactured units are available, as are back-pack spray rigs which could also be used.

"Frequent inspections of all equipment is vital," says Patrissi. "If there are any leaks they're sure to lead to complaints." And, as you might suspect, the applicator plays a critical role when it comes to spraying. The wrong move of the wand or gun, walking through a sprayed area, dragging hose across a sprayed area—all can lead to highly visible complications within a few days. That's why it takes a professional applicator who is trained in herbicide application techniques.

Patrissi says early applications will give full-season control. Grass is trimmed, then allowed to grow back for a couple of days, then sprayed.

"If the application is made right after the ground thaws, the area looks very near clear through fall," he says.

"We try to limit application to the times of the day when there's moisture in the soil. If the moisture is there, it helps eliminate leaching problems, since the herbicide will penetrate as the moisture is taken up by the grass roots. With a dry soil, a heavy application could leach or spread before it penetrates into the soil. Usually we'll spray early in the morning, up until around 11 o'clock or so."

Even with the care needed in application and management, chemical treatments are paying off, Patrissi says.

"In the older cemetery area, which is 10 or more acres, it requires about a full week's work to trim around the large number of raised memorials. Now, with chemical trimming, we've cut mowing time to about one day for two men."

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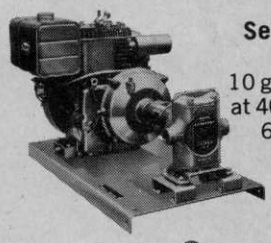
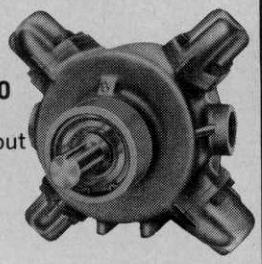


Series 5200 Big Twin
10 gpm output at 400 psi with 6 hp engine



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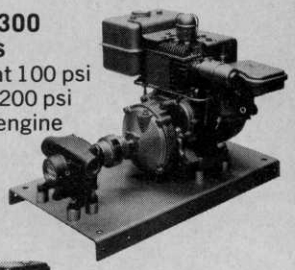

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Hypro / LSi

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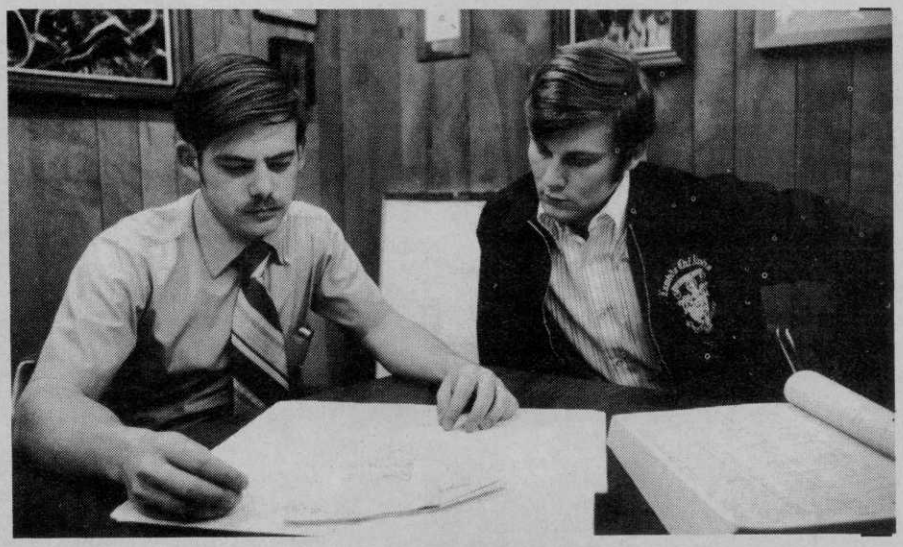

Tom Smith, Hill-Smith Systems, (l) and Orvil Cotten look over schedule of the day's work ahead. Cotten is a recent Memphis State grad, employed by Hill-Smith as a management trainee.

HERBICIDE EMULSIONS *(from page 16)*

decrease velocity of the spray liquid thereby increasing or decreasing pressure.

Of course, just like in a bubble bath, you need something to make the foam. This is done with a spray adjuvant—mixed right in the same tank as the herbicide.

How does the system work in the field? Great, says Thomas M. Smith, who heads up industrial weed control for Hill-Smith Systems, Memphis and Nashville, Tenn. He's been able to cut application costs "nearly half" while at the same time rack up a record of impressive results.

Smith reports his crews have in many instances cut gallonage and application time nearly in half, too, still maintaining excellent control. "The reason is that there's better, more complete coverage using the foam-type nozzles," he says. "Also, one V-type Accutrol boom-mounted nozzle sprays as wide a path as we formerly got with nine conventional nozzles."

Hill-Smith got into the industrial weed control business in 1959. The company is still active in structural pest control, a business that started in 1928.

Industrial weed control must be done right the first time. It cost money to retreat an area. That's why Smith uses a prescription approach in his operation. Banvel, simizine, Pramitol and other herbicides are regularly called on to control vegetation in such areas as ditchbanks, parking lots, utility substations, fences and around signs. Many of these areas have valuable plantings around them which could be injured by drift. Smith's air emulsion system, however, keeps drift to a minimum.

Another big advantage of foam

One Accutrol nozzle attached to a boom sprays a band of chemical 12-15 in width. Truck will soon be equipped with three nozzles for broadcast spray jobs. At right, Smith stands on hillside cleared of Black Locust with treatment of Banvel-4S.

is in coverage. Because the spray that comes from the nozzle is white in color, it's easy to see what you've sprayed. A trained applicator can "eyeball" where he's been. Surprisingly, many applicators report better coverage with less chemical. That's what happened to Smith.

"The first time we used the air emulsion system we ended up applying a lot less solution than we had intended," he says. "We were spraying Banvel and 2,4-D at relatively low rates on honeysuckle,

Smith adds Banvel-4S to tank to control seedling Black Locust. Note that he's wearing gloves and hardhat.

trumpet creeper (vine), dewberry and other vines. I figured we needed 150 gallons of mix to handle the job, but when we finished we had applied only about 30 gallons. It was a hand job, and we judged coverage by the 'eyeball' method. It looked good to us as we applied the chemicals, so we decided to wait and see what would happen.

"In three or four days," he continued, "we could see we'd achieved just about complete control."

Smith explains that the adjuvant in the air emulsion sticks the mixture to the leaves—there's practically no runoff.

Is foam just a passing fancy which like air bubbles pop after a time? We think not. Foam has a definite and growing place in the Green Industry. Commercial applicators are finding that anything that makes the job more precice, anything that makes for better control and anything that enhances weed control management will increase their reputation as industry professionals.

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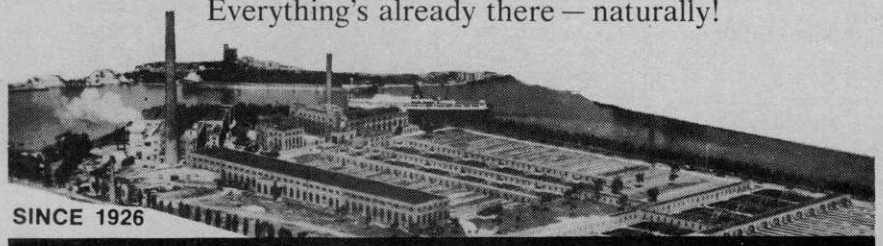

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Air emulsion system from the driver's seat.

Close-up of Accutrol V-type nozzle.

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GYPSY MOTH 1973

(from page 26)

attributes this reduction to the wet year, accompanying viral and bacterial attacks, as well as "peak out" of populations Although these factors and limited state spray programs and containment efforts have been successful, he speculates there will probably be continuing heavy infestations in the central, northwest and eastern sections of the state this year.

Dr. William Metterhouse, state entomologist in New Jersey, does not anticipate significant change in the overall gypsy moth picture. But he points out that all counties in the state are infested to one degree or another. In northern areas infestations are stablilizing, but in central areas such as Mercer county and points south he expects heavy to severe infestations.

Chemical and biological control programs are being researched in the Garden State to find the best methods for what Dr. Metterhouse refers to as containment.

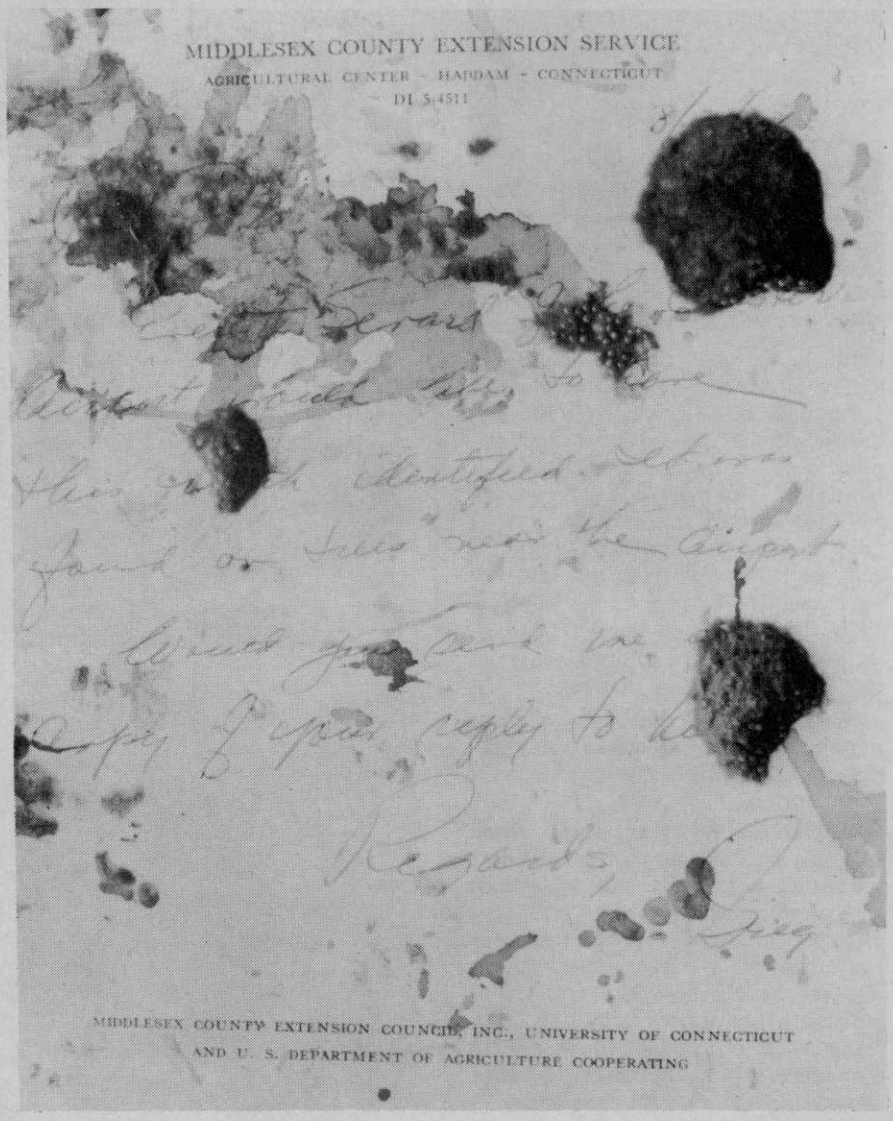
"We feel the gypsy moth is here to stay and our job is to contain it and prevent serious environmental imbalance," he says.

New Jersey sprayed 54,000 acres last year under a state and municipal program. Recommendations call for discriminate spraying in populated, recreational, and park areas this year.

New York State reports a drop in defoliated acres this previous year. E. G. Terrel, head of New York's Bureau of Forest Insect and Disease Control, attibutes this to the wet cold year plus increased bacterial and viral disease.

The quarantine line in 1971 ran

The ultimate insult to an entomologist: his mail, a field report on Gypsy Moth infestations, spattered with egg masses.



north-south from Syracuse to Binghamton. It now has moved west to Rochester and south into Pennsylvania. Heavy infestations still exist in Long Island and Suffolk County with no significant decline noted. Severe infestations remain in the lower Hudson Valley.

Pennsylvania may take much of the brunt of the gypsy moth onslaught in 1973. Forest entomologist James Nichols reports that infestations are especially heavy in the central regions of the state, including Union, Bedford and Somerset counties. In fact, there are only six counties along the western boundary of the state that don't report some gypsy moth.

Virginia and West Virginia authorities also report some penetration by the voracious insect.

Spread of the gypsy moth is seemingly constant. They attach themselves to cars, trucks, and vehicles. Even wind currents can carry the tiny larva up to 20 or 30 miles and often greater distances. Natural predators are few. Mature larvae, with bristly hairs, are unpalatable to birds. Most entomologists and insect control specialists now agree that complete elimination of the gypsy moth is unlikely.

In New Jersey orchard pest advisor Jay Kilpatrick reports unexpected good luck controlling gypsy moth last year.

"I had two apple orchards last season — one in Manasquan and one in Freehold — both on an Imidan program to control plum curculio, codling moth, and red-banded leaf roller," Kilpatrick says. The large orchard in Freehold is over 200 acres.

"Last season both orchards were heavily infested with gypsy moth for the first time," he reports. "Around May 15 — or just about the time for the regular spray before petal fall — the caterpillar population was at its worst."

Kilpatrick applied between one and 1½ pounds of Imidan per 100 gallons of water. "Larvae were on every leaf, but the single spray knocked them out. Imidan didn't get its registration for gypsy moth last spring until the season had already started," he says. "Even so it showed me what it can do. What's more, it doesn't injure honey bees, it's good for aphid suppression, and it has a wide spectrum control of the pests we are trying to get."

Kilpatrick is an orchard pest advisor on the sales staff of Niagara Chemical, Mt. Holly, N. J.

Arborist Wayne Davis of Milford, Connecticut used Imidan on more than 15 residential applications in 1972. "Control in every case was excellent," Davis reports. "I could see no instance of failure—control was uniformly good and we received no complaints from our customers." Davis indicates he plans to use more Imidan this season.

Elimination may be possible in selected areas using all the natural allies plus the newer, temporarily environmentally-approved insecticides. But the nature of the gypsy moth almost defies anything but containment. That is the real objective of most control programs today. □

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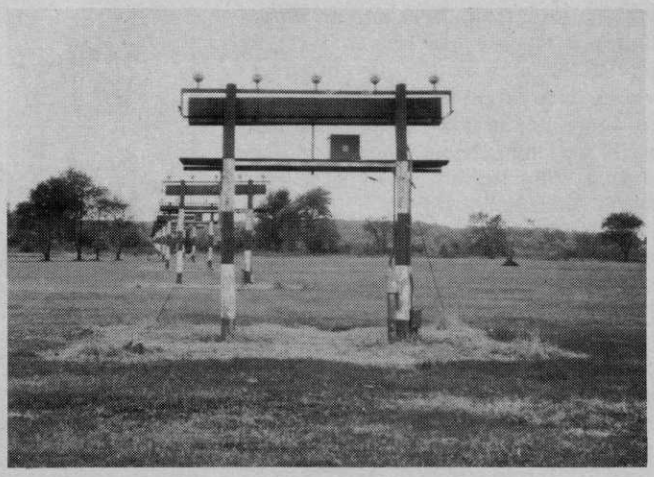
Guy wires and poles are much easier to see and mow around after treating the area with herbicides. Mower operators need never get near these objects.



Treated airfield approach lights keep weeds from interfering with the safety of the operation. These lights can now be easily seen by approaching aircraft.

HALT WEED ASSAULT *(from page 48)*

tract herbicide All other areas are sprayed with Hyvar X.

Weed-free rings around trees and shrubs are produced by digging and mulching followed by a treatment of Simazine at the rate of 2½ to 3 pounds per acre. Hyvar X, applied at the rate of 10 pounds per acre, controls weeds and grasses under fences, around air field landing lights and under ball park bleachers. The same rate of Hyvar X is also applied to control vegetation in transformer stations, on railroad tracks, around buildings and loading docks and along parking lot curbs.

"Because of limited manpower and large areas to be treated, we're spraying on a two year cycle," says Haug. "And, although it's not perfect, and annual treatments are recommended by the manufacturer, we're getting fairly good control over two growing seasons with one spray application."

Agronomist Haug had hoped to treat every fence line, fire hydrant, pole and sign post on the base once a year. But, last November, he lost 80 percent of his crew with a cutback in funds for the Modern Volunteer Army (MVA). Until the reduction in MVA funds, Haug had six permanent employees and 39 MVA temporary assistants. Now his crew

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is down to eight permanent workers.

"This reduction in maintenance manpower makes our chemical weed control program even more important," says Haug. "Without it, we just couldn't keep up with all the work."

Much of that work involves maintaining 3,000 acres of growing grass. Besides using soil active chemicals around mowing obstacles, Haug and his crew treat at least half the acreage with 2,4-D once a year, Although this controls broadleaf weeds which helps reduce mowing, the base's two, seven-gang reel mowers are still on the move nearly seven days a week during the spring and summer months.

Some lawns in key areas on the base require mowing twice a week and many of these lawns have steep banks which are hard to mow. But Haug has found a way to reduce this maintenance headache, too. His men spray these areas with a growth retardant chemical, Maintain CF 125. One application keeps grass from growing for about 10 weeks which eliminates about 20 mowings, says Haug.

Most brush problems on the base are solved by cutting and spraying stumps with 2,4,5-T in fuel oil to stop resprouting. But Haug is looking for a way to eliminate both cutting and stump spraying. In recent field trials, Hyvar X applied to the soil at the base of the brush looks promising, reports Haug.

In total, Haug is very pleased with results of his chemical weed control program. "But our big problem is getting the chemicals down at the right time," he says. "Sometimes we spray too late and miss chances to spray some areas."

To solve this problem, Haug is working on a way to stretch the normal application season. His plans call for the following spray schedule in 1973:

March-April — spray 2,4-D to control broadleaf weeds in half the grass acreage.

May-June — spray Hyvar X bromacil weed killer to control all vegetation around mowing obstacles not adjacent to trees or ornamentals.

September-October — spray Simazine plus Ammate X around trees and shrubs; along curbs and sidewalk cracks; and around mowing obstacles near trees and shrubs.

Based on his success over the past two years, Haug believes this new spray schedule will reduce Fort Dix's grounds maintenance costs even more. □

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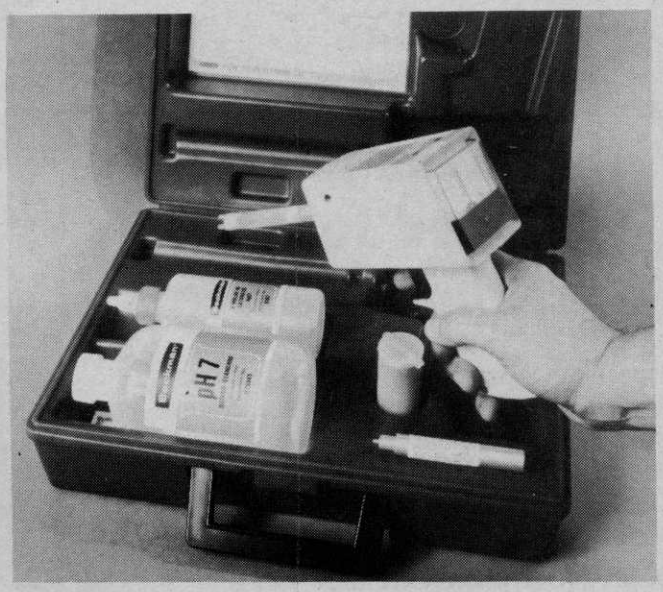
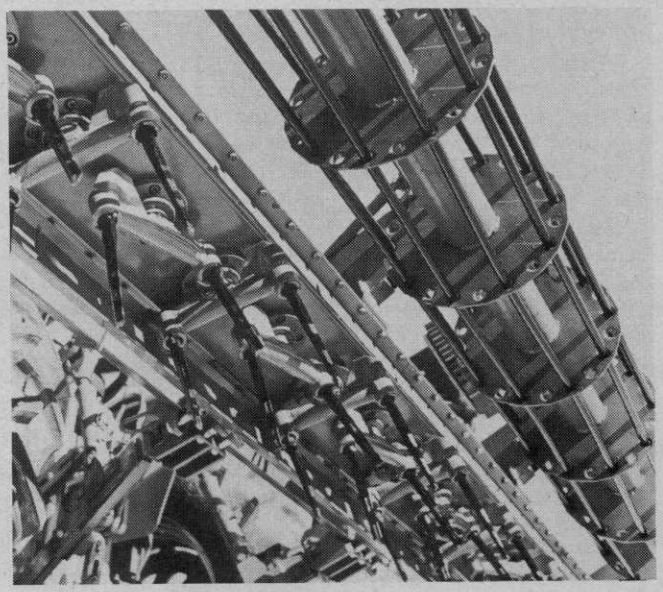


ELECTRONIC pH METER: Scientific Instruments Div., Beckman Instruments, Inc., Fullerton, Calif.

Everything you ever needed to test soil pH is contained in this kit. Basic feature is the "pHistol" a pistol-shaped meter that provides accuracy of plus or minus 0.1 pH within any three units of standardized values. The meter reads soil pH from 2-12. A 9-volt transistor battery powers the all-solid-state instrument up to one year. Also included in the carrying case are: standardizing solution, a shorting plug to assure electrode accuracy, filling solution and battery. For more details, circle (701) on the reply card.

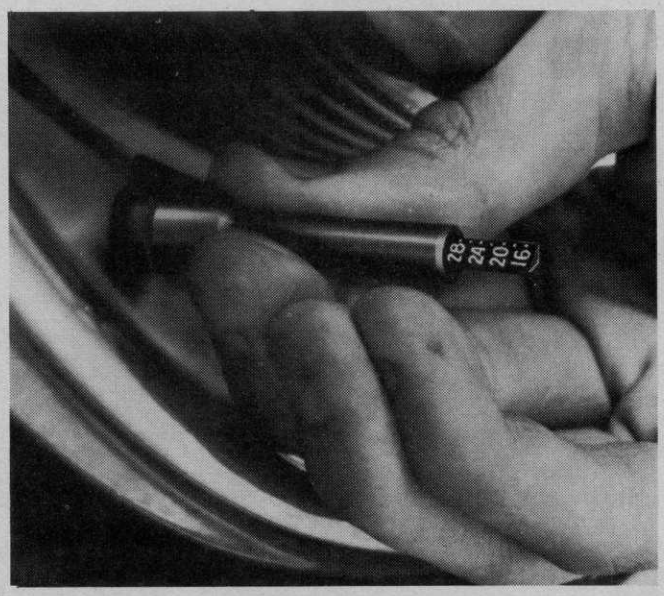


ROTERRA: Lely, Wilson, N.C.

If you've got a seed bed preparation job coming up, then the Roterra is for you. This power-driven rotary harrow features unique vertical tines which whirl through the soil, counter-rotating with a powerful "eggbeater" action. By raising or lowering the rear crumbler bar (the cylindrical looking device above) working depth of the tines can be adjusted and maintained with consistency from one to nine inches. Unit is designed for easy hook-up of spray nozzles and planter for a three-job-in-one trip. Seven models are available. Widths are 60, 80, 100, 120, 140, 160, and 180 inches. Number of rotors varies with each model. For more details, circle (702) on the reply card.

LANDSCAPE TRACTOR: International Harvester Company, Chicago, Ill.

International Model 2400A industrial tractor was designed for the landscape contractor or anyone else who need a medium-horsepowered tractor. It's available in a regular and Lo-Boy model and can be used for mowing, blade work, scarifying and scraping as well as loading operations. Engine is four cylinders with 157 cu. in. (gasoline) or a three cylinder diesel. Both are rated at 46 hp at 2200 rpm governed full load. Gear box is four-speed, synchronized, constant mesh, spur gear that's followed by a Hi-Lo-Rev sliding spur gear range. Thus tractor has eight basic speeds forward and four reverse. All hydraulic controls are on the operator's right; transmission control are on the left. There are no levers or handles to straddle. For more details, circle (703) on the reply card.

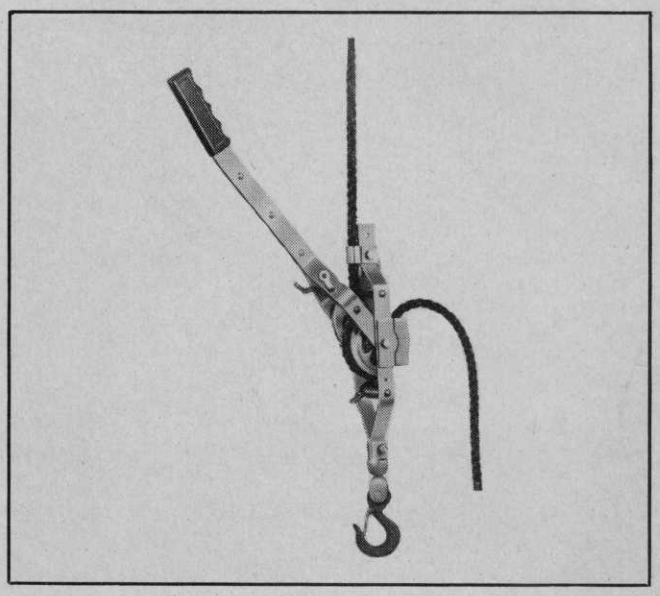


INDIVIDUAL TIRE PRESSURE GAUGE: Jackstraw Enterprises, Fairport, N.Y.

Simply screw this gauge on to the tire valve stem and presto, you have tire pressure at a glance — permanently. Tire pressure can be read quickly and accurately to within one pound by pressing the gauge unit down on the valve stem to activate the pop-up indicator. When gauge is released the indicator returns to its original position. Tires can be inflated or deflated directly through the gauge which functions as a valve stem extension. Each gauge is precision molded of rugged silicon rubber complete with dust cap. For more details, circle (704) on the reply card.

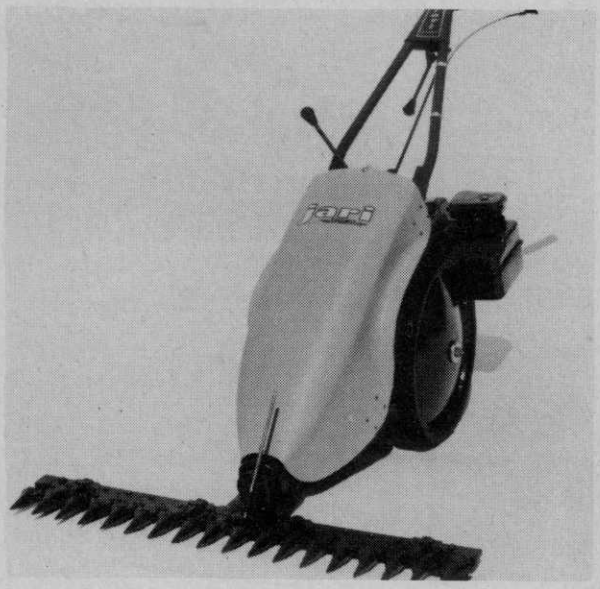
SMALL COMMERCIAL CHIPPER:
Royer Foundry & Machine Co., Kingston, Pa.

Manufacturer of this chipper claims that a new design concept makes for quieter operation. Available in both engine driven and PTO models. Design incorporates a rotating anvil with a combination disc-type chipping rotor and blower. Staggered blades, positioned into openings in the rotor, slice the material into chips and direct them through the blade openings for direct discharge. Rotor serves also as the chipper's flywheel. A torque converted on the engine driven model isolates the engine from sudden cutting shocks. Safety features include a deep-throated feed hopper, power cut-off switch and a protective curtain. For more details, circle (705) on the reply card.



POW'R-ROPE PULLER: Maasdam Pow'R-Pull, Inc., Burbank, Calif.

Here's a tool that is limited only by the imagination of the user. Rope puller is available in one-half ton capacity and is available with or without high test polypropylene line as an optional extra. There is virtually no limit to the length of pull or height of lift. Rope passes through the tool without coiling inside. Capacity can be increased further with the use of pulley blocks. For more details, circle (706) on the reply card.

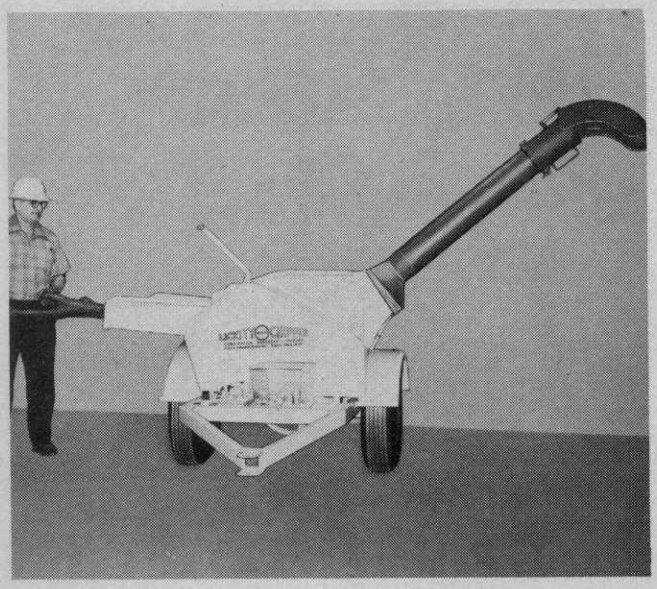


SICKLE BAR MOWER: Jari Division, Mankato, Minn.

This friend is second only to a dog in faithfulness. Up, down, over, under, along and around is where this unit will travel to keep vegetation problems to a minimum. Unit is self-propelled. Floating sickle bars ranging from 16 inches to 60 inches give a cutting swath to meet almost every application. Mower is equally at home on smooth or rough terrain. Cutting height can be easily adjusted from 15/16-inch to 4½ inches. Mower is designed to take objects such as rocks, wire and glass without danger to the operator, bystander or the machine. For more details, circle (707) on the reply card.

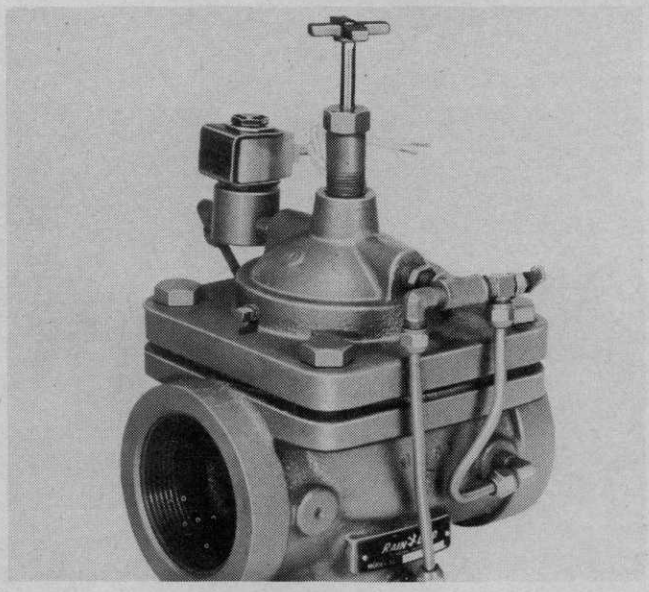
VIBRATORY PLOW: Sod-Master, Minneapolis, Minn.

Pipe Piper, the original vibratory plow, is now being used to install lawn sprinkler systems because it fulfills the landscape engineer's requirements. Flexible or semi-flexible pipe up to two inches in diameter can be buried up to a 16 inch depth without removing turf. The two speed machine can bury pipe at a speed of 50 feet per minute in low gear and up to 150 feet per minute in high gear. Machine is easy to maneuver around corners or obstacles and can be operated by one man. For more details, circle (708) on the reply card.



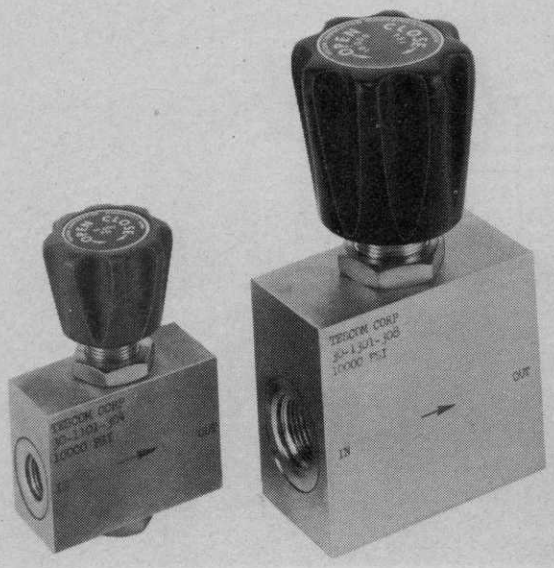
PTO-4 SERIES 2 CHIPPER: Piqua Engineering, Inc., Piqua, Ohio

Larger blower, improved discharge chute, clutch to disengage powered feed roll and dynamically balanced rotor are among the many improvements of the Series 2 Lickity Brush Chipper. Unit will process up to four inches in diameter in soft wood and up to two inches in hard, cross-grained wood. A tractor with at least 30 hp at the power take-off shaft can handle the unit with ease. Chipper utilizes a hammermill type rotor with 18 hardened steel pivoting hammers. The end product is a shredded type chip that makes excellent mulch. For more details, circle (709) on the reply card.



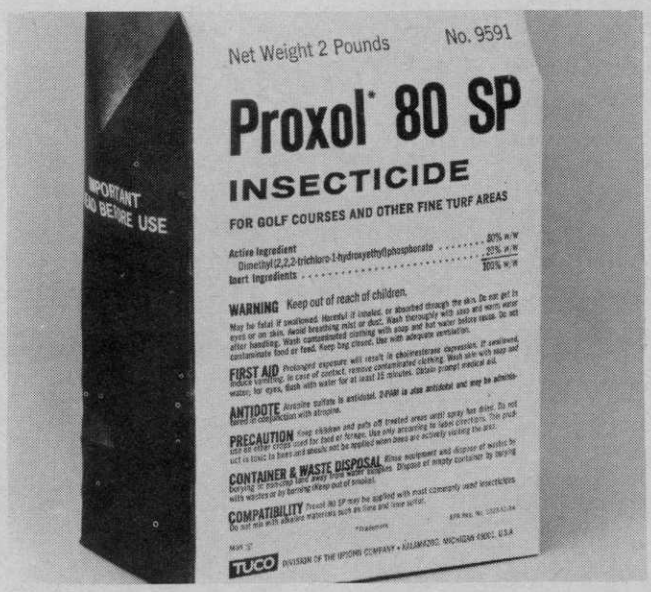
REMOTE CONTROL TEE VALVE: Rain Bird Sprinkler Mfg. Corp., Glendora, Calif.

This remote control Tee Valve was designed for use on large automatic sprinkler systems. It fills the need for a tee valve on above ground solid set irrigation systems. The tee pattern eliminates extra pipe fittings and reduces installation time and cost. Valve is a solenoid operated diaphragm valve with Grit Filter protection. A hydraulic model is also available. The three inch square tee valve is available with flow control and manual operator. Features a replaceable threaded brass seat, stainless steel stem guide and heavy cast iron construction. For more details, circle (710) on the reply card.



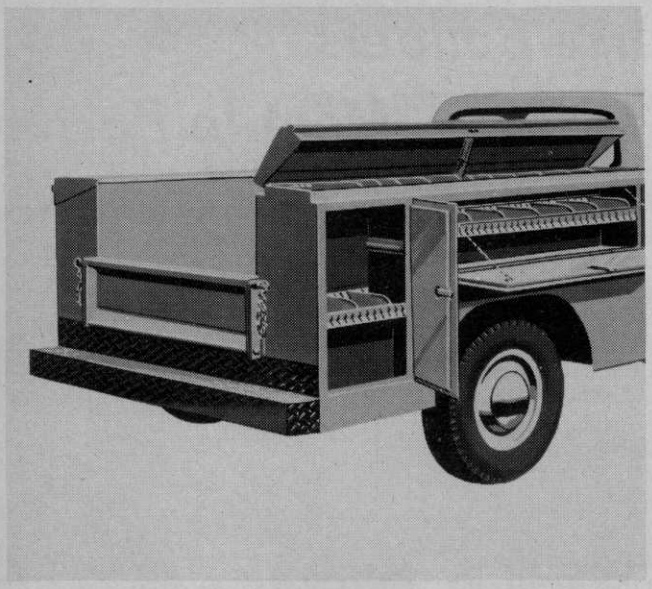
HAND VALVE: Fluid Systems Division, Tescom Corporation, Minneapolis, Minn.

Suitable for service on line pressures up to 10,000 psi, these hand valves are for use under severe, hydraulic/pneumatic control conditions. All metal parts are constructed of SST. Valve seats are Kel F and renewable; "O" ring stem seals are available in a wide variety of compounds. Control knobs are made of aluminum with a choice of seven different colors for use in panel coding systems. The 30-1200 series is available in angle or globe configuration with ¾ inch or one inch ports for the tube, pipe or super-pressure installations. For more details, circle (711) on the reply card.



PROXOL 80 SP INSECTICIDE: Tuco Division, Upjohn Company, Kalamazoo, Mich.

Control sod webworms, cutworms and chinch bugs in turf this spring with this new insecticide. Researchers report that the compound is one of the fastest acting turf and ornamental insecticides on the market. It controls insects either on contact or ingestion into the stomach. Sod webworms and cutworms are killed within 48 hours of application. Manufacturer says that Proxol breaks down rapidly and does not accumulate in the environment. It has little effect on beneficial insects when applied according to directions. For more details, circle (712) on the reply card.

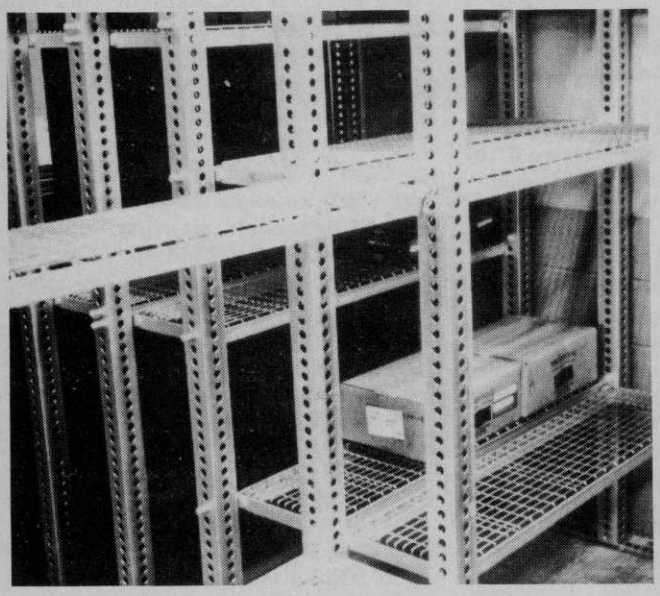


MINI SERVICE BODY: Reading Body Works, Inc., Reading, Pa.

If you're the owner of a Ford Courier, Chevy Luv, Datsun or Toyota half-ton truck and need a service body, then this new product will solve the problem. These bodies are scaled-down versions of full size standard and Spacemaker service bodies. Each unit provides organized carrying space for a large variety of equipment in weathertight lockable compartments. Construction is of heavy gauge steels integrally welded. Doors are double-paneled and highly resistant to corrosion. Locks are slam-action in operation and guaranteed to the original owner for the life of the body when properly maintained. For more details, circle (713) on the reply card.

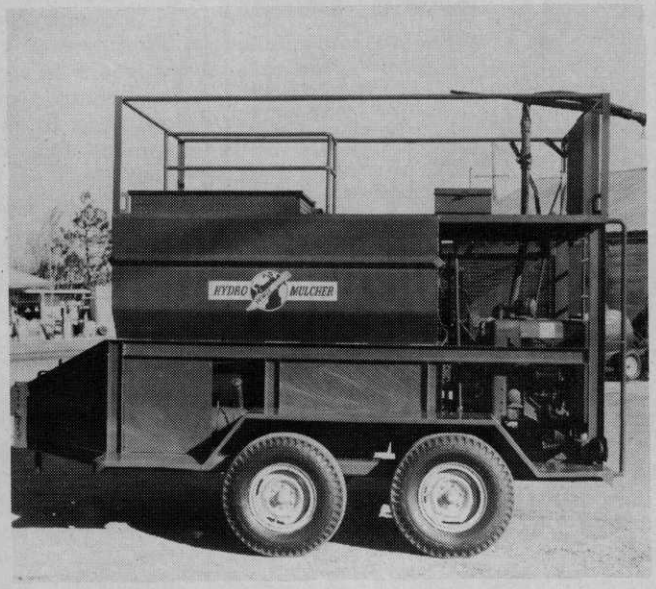
WATERPROOF FIRST AID KIT: General Scientific Equipment Co., Philadelphia, Pa.

It is an OSHA violation not to have a First Aid kit available for employees. This kit complies with the regulations and includes a balanced assortment of supplies. Kit is adequate for up to 10 persons. Contains three times as many small wound dressings and up to twice as many large wound dressings as other kits. Adaptic non-adhering sterile dressings for burns and complete first aid for eye injuries are also included. Case is dust-proof, rust-resistant and has rounded corners. Also has wall brackets and carrying handle. For more details, circle (714) on the reply card.



HEAVY DUTY SHELVING: Aeroquip Corporation, Jackson, Mich.

This heavy duty shelving was initially designed for use aboard ocean-going supply vessels. Will hold up to 1,000 lbs. per shelf and can be installed to meet assorted width and height requirements. Available in steel and stainless steel. Pillars of the system fasten to both floor and ceiling and can mount shelving at higher levels than many types of storage racks. For more details, circle (715) on the reply card.



TRAILER TYPE HYDRO-MULCHER: Bowie Industries, Inc., Bowie, Texas

Here's a trailer type hydro-mulcher that has a capacity of 1,000 gal. It sprays, seeds, fertilizes, mulches, waters, sprigs simultaneously or separately as grounds planting or maintenance requires. Features include: heavy-duty construction, centralized spray tower and console control, longer throw of slurries and more even distribution over large or small areas and embankments. Unit can easily be pulled behind truck for quick set up. For more details, circle (716) on the reply card.

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Golf Course Builders Meet In Boston

"Everything you wanted to know about golf, but were afraid to ask" was the theme of the Golf Course Builders of America when they met in Boston in January.

The second annual meeting, held during the Golf Course Superintendents Association Conference and Show, featured five speakers representing diverse areas of golf course construction.

Col. Harry Eckhoff, USAF (Ret.), facility development consultant for the National Golf Foundation told an audience of about 30 that contrary to popular belief the executive course trend is not increasing. Only 18 new executive courses opened for play in 1972.

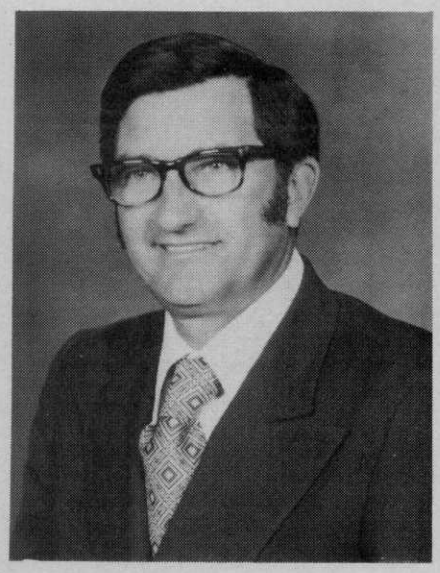
Looking at the overall golf picture, Eckhoff cited potential problem areas. From 1962 to the present, FHA guaranteed loans of $85.5 million to towns of 5,500 or less population to expand golf courses, he said. About 140 towns are in trouble. They haven't made payments on loans. These towns are scattered throughout 41 states.

The consultant said that another trouble spot concerns housing developers. In some areas the developer requires ownership as a prerequisite to membership in a golf course. This can and has led to complications, Eckhoff noted.

He also said that there was a positive trend in municipal golf course construction. Population growth, urbanization, more leisure time and others were cited as influencing factors. Golf is becoming more popular to people of less financial means. These people cannot afford membership in private facilities, but want to play golf. Thus, the municipal course holds much promise and growth in the future.

Speaking on the importance of irrigation was James J. Kirchdorfer, president, Kirchdorfer Irrigation Inc., Louisville, Ky. He told delegates that planting seed and water must be an almost simultaneous operation. Survival rate is about 90 percent if you water within 10 minutes of planting, he said. Survival decreases to 80 percent if watered within one hour and 40 percent when water is applied within one day.

Kirchdorfer said that one major problem is that superintendents wait until the last piece of pipe is in the ground before testing the irrigation system. Once the pumping station is in the system can be tested. With the irrigation system sound and in operation the golf course will come into play sooner and with fewer problems, he concluded.



Henry L. Nielsen Jr., Nielsen Construction Co., Warwick, N.Y. has been elected president of the Golf Course Builders of America. He's been in the construction business for 30 years.

Next followed an interesting review of drainage and tile by Eugene M. Witter, sales manager, Hancock Brick & Tile Co., Findlay, Ohio. Golf and drainage practices had their origins in the same country. Both came from Scotland, Witter said. While clay tile has been used widely in agriculture, there has always been problems associated with it. Proper alignment and the weight of the material have made the job of laying tile most unpleasant. However, the advent of plastics have revolutionized the industry. Flexibility in tile and minimum weight can now be achieved, he said. Plastic tubing is currently available in sizes from two inches to 10 inches in diameter.

Profits are the result of volume times efficiency, said Joseph S. Finger of Houston, Texas, He challenged those attending the meeting that "...the future of golf is in the room." We must build better golf courses for less money. "That means efficiency," he injected. "Efficiency is the product of productivity divided by problems."

Finger listed four problems common to golf course builders. Weather was one. Topography is another. He cited the client as a third. "Few are knowledgeable of golf course construction," he said. The last problem area is the golf course contractors.

The golf architect said that it is "time we joined hands — contractors and architects — to get the story across to our clients." We recommend meetings between contractors and builders. Plans and specifications today must be complete and detailed. He said that the need for more detailed plans has grown out of poor construction. Where an architect used to have 20 pages of specs and 20 pages of drawings, he now must have 75-80 pages of specs and 50 pages of drawings.

Finger said many courses today are being built by developers. "It's hard to convince a developer to pay ten percent more to include a golf course builder in the construction," he said. "But the architect and the builder together with proper literature can convince a developer that this is a special type of construction. That's why we must work together."

He noted that even though the total number of golf courses is increasing yearly, the average today is one course per 30,000 people. "At this rate, even with zero population growth, we are going to lose 100 golf courses in 30 years," he said.

A "Dear Abby" for builders chaired by Robert Chakales, Richmond, Va., followed the formal portion of the meeting. This presented an opportunity for delegates to ask questions of speakers.

New officers for the organization are: Henry L. Nielsen Jr., Nielsen Construction Co., Warwick, N.Y., president; Frank A. Underwood, Underwood Golf Course Construction Co., Bowie, Tex., president elect; James Kirchdorfer, Kirchdorfer Irrigation Co., Louisville, Ky, vice president; Lee A. Bilberry, golf course contractor in Houston, Tex., secretary; and James Shipe, Turf Industries, Bel Air, Md., treasurer.

Valley Tractor & Equipment Named Bolens Distributor

Valley Tractor & Equipment Corporation, 616 Jefferson Hwy., New Orleans, Louisiana has become a distributor for the complete line of lawn and garden equipment from Bolens, Division of FMC Corporation, Port Washington, Wisconsin.

Valley will handle the Bolens tractor line and the urban/suburban line in the states of Louisiana, Mississippi and Southern Alabama.

Howard Hampton is president, John Bierbaum is sales manager, Lester Felder is sales manager for outdoor power equipment, and William J. Napier is service manager of Valley, which has been in business in New Orleans since 1947.

In-Line Plastic Valve Component Announced By Toro

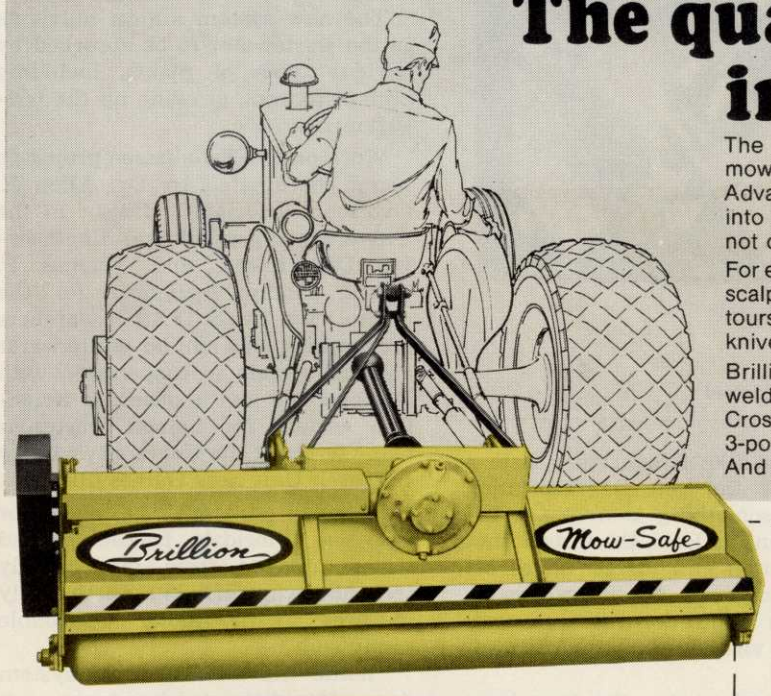
The Irrigation Division of The Toro Company, has introduced a new 1½-inch, in-line plastic valve component for its automatic underground sprinkler system line.

The hydraulic, normally-open, piston-type valve is made of high-impact, corrosion-resistant Cycolac and features a coaxial design for high flow and low friction loss. Both inlet and outlet are regular pipe thread connections.

Toro normally-open valves operate (open) when water pressure to the valve is relieved, and close when a supply pressure is applied from the controller.

New 72" Mow-Safe

The quality mower in the 6' class



The new Mow-Safe MS-720 combines safety, precision mowing and maneuverability like nothing else in its class. Advanced Brillion engineering incorporates deflector bar into hood design. Cuttings and debris are deflected down, not out. Protects operator, passersby and buildings.

For even cutting, big 6" diameter roller ends ripples, reduces scalping. Unique float link lets mower follow ground contours. Cutting height adjusts easily from ¾" to 6". Folding flail knives cut clean, swing freely, are easily replaced.

Brillion builds it tough, for long trouble-free life. Frame is all welded. Gear box support unitized with hood weldment. Cross-shaft, drive pulleys and PTO are all shielded. Fits 3-point Category I hitch. Wide choice of options available. And see the 88" Mow-Safe for large-area mowing.

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For More Details Circle (115) on Reply Card

Brush Chipper and Stump King vs. Dead Wood

Wayne's Dynamic Duo are more than a match for Nature's Dastardly Dropouts. They take on the brashest brush and surliest stumps and cut them down to no size at all.

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The BRUSH CHIPPER eliminates more brush in less time than any other method. Its exclusive six-sided disposable bed knife has 50% more life expectancy than conventional four-edged blades. The dynamically balanced rotor is machined from a solid forging. And under its hood is no popcorn popper, but a big hairy 318 cubic inch V-8.

The STUMP KING has an exclusive swivel mounted cutting head that gives you a 64 inch reach—enough to do the job without relocating. A hydraulic control lets you adjust the unique 147 inch traverse to match the toughness of the stump. And with a cutting depth of 27 inches, you can get rid of *all* of the monster.

Why not write for our heroic brochure on the Brush Chipper and Stump King? There must be a lot of dead wood you'd like to get off the street and out of the shop.

FMC CORPORATION, WAYNE DIVISION, 1201 E. Lexington Street, Pomona, California 91766

For More Details Circle (138) on Reply Card

Taking A Tree's Temperature

To get a better understanding of how American elm trees react to Dutch elm disease, plant scientists at Michigan State University have been "taking the temperature" of infected trees.

"Since trees don't have a mouth, much less a tongue to tuck a thermometer under, we measure how fast the tree breathes in air and gives off oxygen," says Dr. John H. Hart, plant pathologist.

To a tree, respiration, or breathing, is just like temperature is to a human. If the rate of respiration goes up, something is wrong.

According to Hart, the fungus that causes Dutch elm disease gives off a toxic compound. When a tree is infected, its respiration rate goes way up before visible signs of wilting appear.

How much water the tree loses into the atmosphere is also a good scientific indicator of sickness, the plant doctor notes. "Elm trees begin to lose water very soon after the fungus invades them," says Hart.

Municipal Sewage Recycling Subject of EPA Grant

A $98,100 grant from the U.S. Environmental Protection Agency has been awarded to the University of Florida's Institute of Food and Agricultural Sciences to test a new method of recycling municipal sewage water through farmland.

The grant, announced by Dr. John W. Sites, dean for research, will be used to expand research already underway in Tallahassee at the city's Southwest Waste Water Treatment Plant. Funds for the study were given to the University, Sites said, because "preliminary tests have been so encouraging and there has been so much national interest in the project."

A major goal of the research is to demonstrate the feasibility of discharging some 2½-million gallons of effluent from the treatment plant over farmland through a sprinkler irrigation system. Heretofore, the daily discharge of waste water, which is about 90 percent treated, has been dumped into Lake Munson west of Tallahassee, causing the lake to become polluted.

Plans are now underway to expand the treatment plant to a 10-million-gallon-a-day capacity, and it's hoped that all the discharge could eventually be retained on land, Sites said.

The new system allows nutrients in the wastewater to be absorbed by various types of plants, including animal forages, growing on the irrigation site.

Work on the Tallahassee project is being coordinated by Dr. Allen R. Overman, associate professor in the University's Agricultural Engineering Department, and Thomas P. Smith, sanitary engineer for the capitol city. Other IFAS researchers are working on a similar waste water disposal system in cooperation with Disneyworld and a sprinkler irrigation system for animal wastes is being tested at the University's Dairy Research Unit near Gainesville.

Overman stressed the need for guarding Florida's fragile ground water supplies from inadequately treated sewage effluent, particularly in areas with highly permeable sandy soils.

"While the land disposal system does offer distinct advantages over dumping treated wastes directly into lakes or streams, irrigation systems with excessively high loading rates could result in nitrate breakthrough to the ground water," he warned.

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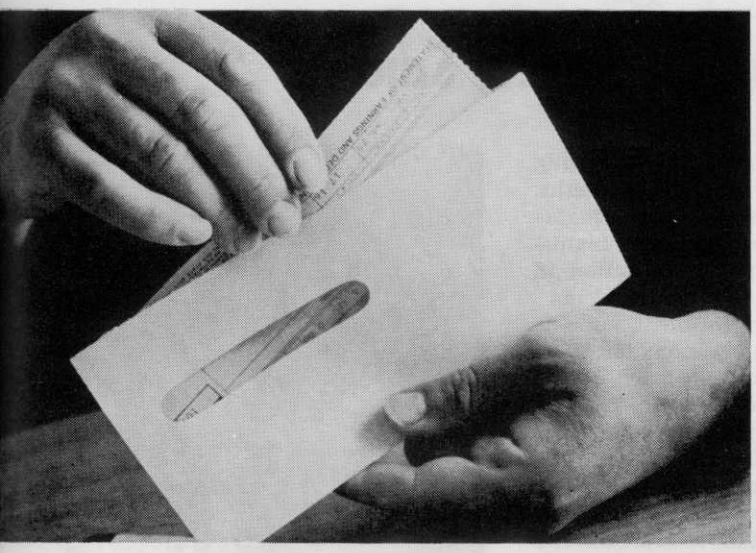

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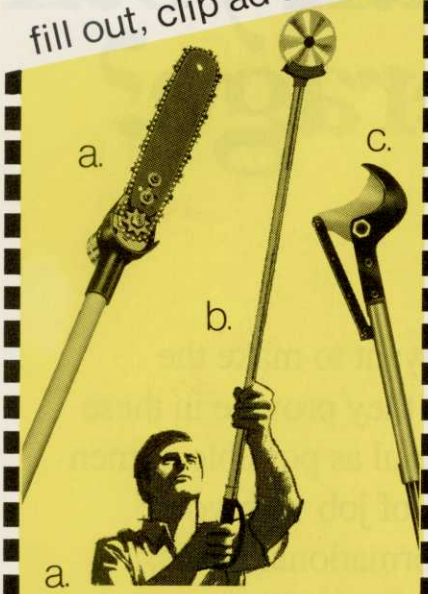

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Workbenches become full quickly as students tear down and rebuild component parts under the watchful eye of Bolens personnel and supplier representatives.

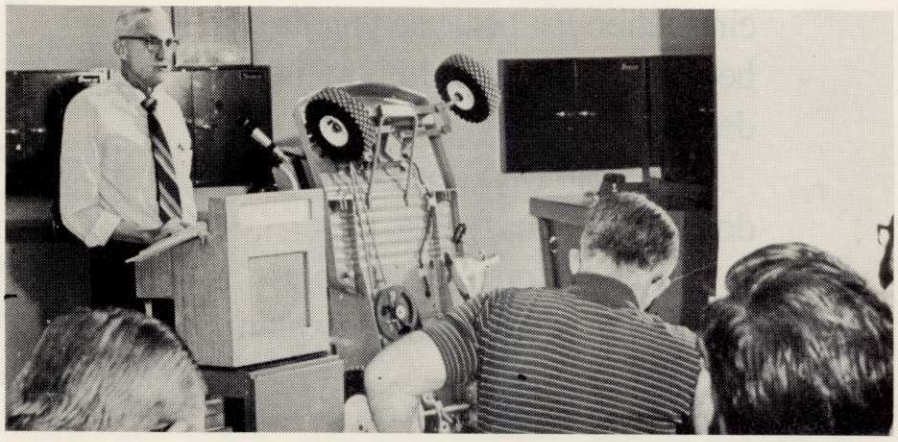
Inside Look At Service Schools

Service schools are in full swing during the winter and spring months. And distributor service representatives find these contacts with manufacturers a positive contribution in helping solve on-the-job problems.

Typical of these service schools is the three four-day sessions for 15-20 students each conducted by Bolens Division, FMC Corporation. Held at the factory in Port Washington, Wisc. the schools are aimed at keeping the service man aware of the changes in the electrical, mechanical and hydraulic systems of the manufacturer's line of equipment.

Upon completion, the students return home to conduct similar schools for dealer service representatives.

Students work in tandem. Each learns first hand about component parts of engines and associated equipment.



Arnold A. Meyer, training director, conducts the opening session of a Bolens Service School. Students are subjected to both classroom and laboratory work.

◀ For more details on preceding page circle (164) on reply card

industry people on the move

JOHNIE W. BRAMBLE, JR. joins the recreation and parks department management staff for the City of Sacramento, Calif. For the past 10 years he was parks superintendent for the city of Chico.

* * *

RICHARD P. COOPER, appointed assistant sales manager, municipal products division for FMC Corporation, Wayne Division, Pomona, Calif. He will assist in the administration of all domestic and Canadian sales of the municipal division, and in the direction of dealer sales activities.

* * *

CARL R. STULL, elected president of the Chemical Specialties Manufacturers Association for 1973. He is currently manager for the agricultural and sanitary chemicals department of Rohm and Haas Co.

* * *

WILLIAM E. McGUINNESS joins the staff of The F. E. Myers & Bro. Co. as vice-president, finance. He was formerly corporate staff auditor for McNeil Corporation of Akron, parent company of Myers.

* * *

RICHARD W. FIELDS becomes manager for marketing and development of chemicals for the industrial brush and weed control market for Velsicol Chemical Corporation. **DONALD E. TELGE,** who joined the company in 1972 becomes vegetation control specialist—railroads.

* * *

ROBERT W. BENNETT appointed manager of FMC Corporation's Niagara Chemical Division, Middleport, New York.

* * *

STEVE MEIMANN, DONALD R. JONES, and ROBERT McKEAQUE are now agricultural sales representatives for Thompson-Hayward Chemical Company. Meimann is located in Des Moines, Ia.; Jones in Snow Hill, Md.; and McKeaque in Davenport, Ia. In other company moves, **WAYNE E. WILLIAMS** is a new market development sales representative. **JIM DUSIN** is promoted to branch manager of the distribution center in Yakima, Wash. **DR. ROBERT H. SPARNICHT** joins T-H as director of field research and development in the eastern U.S.

* * *

JACK MURNAGHAN and DOUG HERON become ProTurf technical representatives of O. M. Scotts & Sons' Canadian program for servicing golf courses, sod growers and other large turfgrass areas. Murnaghan will handle eastern Ontario and Heron will serve western Ontario.

* * *

JOHN J. WOLFE appointed area manager for Kohler Co. His territory will include Wisconsin, Michigan, northern Illinois and northwestern Indiana.

* * *

CLIFFORD L. ACKLEY elected chairman of the board of Ackley Manufacturing Company, Clackamas, Ore. He is one of the founders of the 16 year old firm.

* * *

PATRICK KIELY becomes division personnel manager for the agricultural chemical and international divisions of Amchem Products, Inc.

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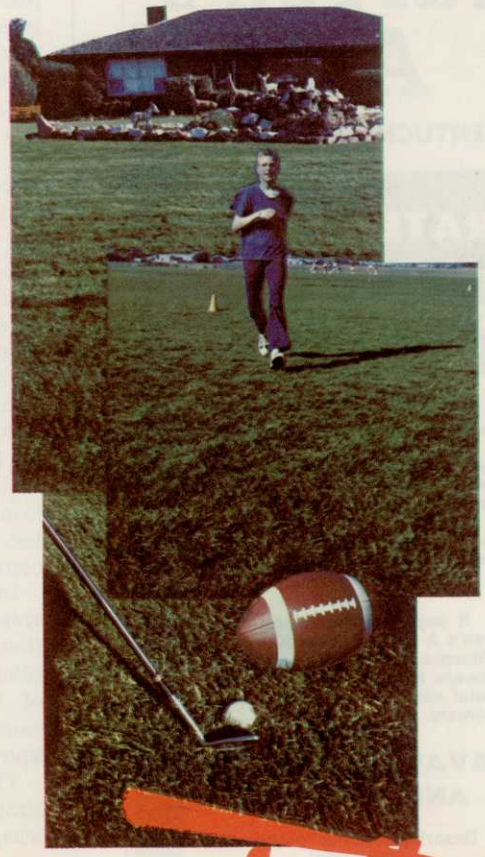

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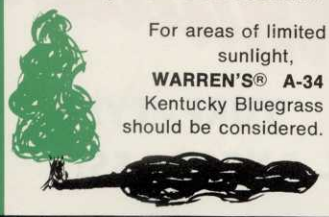

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LETTERS TO THE EDITOR

In your editorial of Jan. 1973 you credited several states with programs to enable applicators to become licensed. As an aerial applicator I have been tested and licensed in three states, Colorado, Kansas and Oklahoma. I rate the three states in this order. For aerial applicators, the Colorado test requires the most knowledge to become licensed, and they have one of the best reporting systems (required monthly) during the season.

But I believe the State of Kansas has made more progress in educational programs than almost any other state. Starting in January 1971, a program was begun to educate applicators, both ground and air. Courses were held in vocational technical schools and 120 hours of instruction was given at a very nominal fee. Again in 1972 a 40 hour course was held.

Information on these courses was widely advertised and was there for the taking. Many applicators did not take advantage of these training programs because they are "old timers" and know it all.

The Kansas test was much too simple after all the training that was made available.

Oklahoma has a good test, but not real comprehensive or requiring any special knowledge or training to pass.

In January the area vo-tech school in Liberal, Kansas offered a program to license farmers to meet the proposed EPA requirements, along with a special corn producer class. Not one individual enrolled, but over 50 farmers enrolled in the corn producers class.

I . . . just want to see people who deserve an "E" for effort receive it. **Del Lawson, Elkhart, Kansas.**

I recently wrote a letter to my governor (Oregon) about the use of pesticides and insecticides. I wrote to him about the people who complain about the use of pesticides. It seems that the citizens of the U.S. want to see the ban of all pesticides because they feel that it is hurting our environment. In most cases the people who would like the ban of pesticides have never used them or even plan to. This is like saying you don't like ice cream without even tasting it. (By the way, ice cream is very good.)

Not too long ago President Nixon said that he is trying to pass a law that the use of pesticides and insecticides be banned totally to the public except for licensed experts. This would be a very good law. It would probably reduce the complaints about pesticides to a very minimum. The reason: those who use pesticides (except experts) do not use them correctly and thus the public complains about how it effects our wildlife. **Juergen Witte, Medford, Oregon.**

In your January 1973 issue your editorial mentions the "International Pesticide Applicators Association, Inc." Would you kindly furnish me with their address and the name of the executive secretary or correspondent so that I may establish liaison with him.

Although I agree with the general tenor of your editorial I think you will find that there are several other states that are furnishing applicators with information and requiring some sort of examination. The northeastern pesticide coordinators are presently well along in the preparation of a basic "core" manual for pesticide applicators designed as a self-training manual and will soon embark upon the preparation of several additional supplementary manuals in seven specialized areas.

In addition, the New England States and New York recently held a joint meeting of their regulatory officials and the pesticide coordinators to consider standardization of training materials, examinations, and registration for licensing so that licensing could be treated on a reciprocal basis. All of this bodes well for the applicator and hopefully will over the years improve his professional stature. **James E. Dewey, extension program leader, chemicals-pesticides, Cornell University, Ithaca, N.Y.**

Editor's Note: The executive secretary of the International Pesticide Applicators Association, Inc. is Lew Sefton, Sefton's Spray Service, 5600 S.W. Rosewood, Lake Oswego, Oregon 97034. JAS.

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GREATEST SPECTACLE

(from page 44)

ment student, University of Massachusetts, Amherst, summed up many of the feelings of turfgrass students about their future. He said, "When Dr. Troll (Univ. of Mass.) greets a new freshman class each year, he passes on this bit of information, 'You have to think turf, sleep turf, eat turf, or in other words, you have to be some kind of man to succeed in becoming a golf course superintendent,' I believe there always will be a place in this field for a person who orients himself towards Dr. Troll's beliefs."

New president of the Association for 1973 is Clifford A. Wagoner, superintendent at the Del Rio Golf and Country Club, Modesto, Calif. Other officers are: Charles G. Baskin, superintendent, Country Club of Waterbury, Conn., vice-president; Palmer Maples, Jr., superintendent, The Standard Club, Atlanta, Ga., secretary-treasurer. New directors elected are: George W. Cleaver, superintendent, Chestnut Ridge Country Club, Lutherville, Md.; Gordon C. Witteveen, superintendent Northwood Country Club, Toronto, Canada.

Site of the 1974 meeting is the Anaheim Convention Center, Anaheim, Calif. This will be the 45th annual meeting. Dates are: February 17-22. □

Design Changes Complete Says Lockwood's Dan Walter

The Lockwood Corporation of Gering, Nebraska, has announced completion of its long-rang program to restyle and re-engineer the Lockwood-Hardie line of shade tree and utility sprayers.

According to Dan Walter, Product Manager for the sprayer line, Lockwood has been making gradual improvements in the Hardie line of sprayers since purchasing it two years ago. One major improvement is stainless steel tanks as standard equipment on air blast sprayers to increase their longevity and reduce maintenance. Another is their lower profile design to improve overall maneuverability, prevent sliding and make the sprayers easier to pull.

Walter further announced that Lockwood is now holding training seminars for dealers regarding new features of the Lockwood-Hardie line. One point being stressed to dealers at the seminars will be the importance of new equipment field demonstrations at the user level.

Varieties Resistant To DED Studied At Mich. State Univ.

Arborists will soon be able to replace trees lost to Dutch Elm Disease with a disease-resistant elm variety, according to a Michigan State University forestry specialist.

Within the next decade, an elm-breeding project begun in 1969 at MSU should produce a suitable variety that resists the fungus disease, says Dr. Jonathan Wright.

One type, the Siberian elm, has already proven disease-resistant. But it tends to break down during ice storms and has neither the large leaves nor desirable shape of the American elm, Wright notes.

"We are screening over 600 elm samples from 200 countries, including Bulgaria, Siberia and Japan, to locate a variety that shows resistance to the disease, rapid growth, longevity and good form," the forestry specialist says.

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New! The Hesston Stump Cutter

The easy, economical way for one man to remove tree stumps! In one, simple operation, the Stump Cutter cuts away at stumps until there is nothing left but a neat 8-inch deep hole in the ground. And the hole can be refilled in a matter of seconds, without leaving the slightest trace of a stump ever having been there!

The compact, lightweight Stump Cutter is easy to operate, and easy to get into those hard-to-reach areas other stump removers can't handle. It rolls right through standard size doors and gates, and moves easily in shrubs, next to buildings, along sidewalks, driveways and curbs.

The Stump Cutter's rotating tungsten carbide cutting wheel, fully-enclosed power-band drive, and big 8 hp Briggs & Stratton engine make fast work out of cutting the toughest hardwood stumps. Fold down handles make storage and transportation easy.

See the Stump Cutter soon and see how Hesston is making stump removal a one-man job!

Move up in power, style and versatility, and move out of the miniaturized farm tractor class with the first true GMT. The Hesston Front Runner...a grounds maintenance tractor designed with the operator and attachments "up front," for precise, efficient control. The Front Runner is fast, powerful and stable on slopes and hillsides. Hydrostatic front wheel drive gives top speed, up to 11 mph, with instant forward and reverse controlled by a single lever. Articulated steering lets you cut circles, make short radius turns, and get in close to walls, curbs, buildings and other obstacles. Optional power steering makes driving even easier! Quick-change mower heads on the big 18 hp Model 180 include the giant 80" batwing mower or 60" head mower ...to make fast work out of the biggest jobs. The self-contained vacuum pickup lets you clean as you mow... holds up to 20 bushels of clippings, leaves and litter! The Model 140, with 14 hp engine, has plenty of power for both the 48" and 60" mowers. Other front mounted attachments include: angle dozer, rotary broom and 42" or 48" snow throwers. There are also rear-mounted, ground engaging attachments like: 8-blade disc, moldboard plow, cultivator and aerator. See the Front Runner GMT at your nearest Front Runner dealer...you'll see why it's in a class by itself!

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Controlling Weeds Under Trees

By Elton M. Smith
Extension Specialist
Landscape Horticulture
Ohio State University

The use of the combination of post and pre-emergence herbicides to control weeds under trees in nurseries, park areas, golf courses, and other landscape situations is increasing rapidly.

Herbicide tests designed to evaluate five combinations of post emergence herbicides with Simazine in the control of weeds beneath trees were conducted in a commercial nursery in New Carlisle, Ohio during the summer of 1971.

The specific objectives of these experiments were to ascertain the extent of weed control, degree of weed regrowth and to observe any phytotoxicity.

Treatments were sprayed on a 2½' band in a row of newly planted Radiant Crabapples on June 11, 1971 with weeds 6-15" in height. The area between the rows was maintained in sod and mowed periodically. Results were evaluated on July 15 and August 17, 1971.

TREATMENT — RATE AIA	RATING	COMMENTS
Daconate 4# + Simazine 2#	Poor	Extensive smartweed and Flower-of-An-Hour present
Amitrol T 2# + Simazine 2#	Good	Lambsquarters present
Amizine 7#	Good	As above with lambsquarters and smartweed recovering
Phytar 560 2# + Simazine 2#	Good	Lambsquarters recovering
Paraquat 2# + Simazine 2#	Excellent	Nearly complete control

The observations in July were rated as indicated below with the following values:

Excellent—Nearly all annual weeds controlled.

Good—Acceptable control, 1 or 2 species uncontrolled.

Fair—Acceptable, with several species uncontrolled.

Poor—Unacceptable weed control.

Two months following application the Simazine in all plots was continuing to effectively control the growth of annual weeds. Those existing weeds which were not completely killed with the post-emergence spray had regained vigor and were quite large, particularly the lambsquarters and smartweed.

There was no evidence of damage to the foliage or trunk of the Crabapples with any of the treatments. The leaves of the suckers which were sprayed were injured or defoliated, however, the woody stem growth remained.

The most effective treatment in this study for the control of weeds beneath trees was the combination of Paraquat and Simazine. The Phytar 560 + Simazine combination was slightly more effective than the combinations of amino triazole and Simazine.

USDA Scientists Study Air Pollution

Everybody talks about how air pollution affects people, but polluted air also injures crops and other plant life. With a view to reducing or eliminating this damage to plants, scientists in the Agricultural Research Service are making intensive studies of the ways in which pollution injury occurs and in finding ways to reduce grower losses.

The need for such studies is becomming critical. Air pollution injury to vegetation is increasing across the United States, according to Dr. Howard E. Heggestad, plant pathologist and Head of the ARS Plant Air Pollution Laboratory in Beltsville, Md. It is currently causing losses estimated at more than half a billion dollars annually . . . and these losses are rising.

In 1969, 281 million tons of pollutants were released into the air over the United States. Many Americans — most notably the 150 million urban residents — have to live with this polluted air for most of the year.

Although the problem is a general

one, some areas are affected to a greater extent than others. The major pollution problem in the eastern United States, for example, extends generally from North Carolina to Massachusetts. However, it seems to be most severe within 100 miles of the coastline.

In line with this observation, Dr. Heggestad found that levels of plant-damaging oxidants, primarily ozone in Washington, D. C., doubled between 1961 and 1970. The problem became most acute during four days of severe air pollution in late July 1970. Following the episode, the National Park Service reported foliar injury on a wide variety of tree species in Washington, D. C. when leaves began to yellow and turn brown. Also, in early June 1971 an episode occurred when relatively heavy concentration of photochemical smog were formed in the atmosphere. These toxicants are created by the action of sunlight on products of fuel consumption (nitrogen dioxide and unburned gasoline).

Dr. Heggestad and his associates also found that plants grown under humid conditions in the eastern United States are much more sensitive to air pollutants than those grown in the arid West. He also noted that pollution damage to vegetation varies by season. More damage occurs in summer months, primarily because of higher temperatures which favor photochemical reactions and the production of ozone and other oxidants.

Research studies representing a scientific effort to head off the air pollution threat to plants have been underway since 1968 at the Plant Air Pollution Laboratory and several field stations. This research focuses on the mechanisms of air pollution damage to ornamental plants and food crops, the role of trees in removing pollutants from the air, and the development of pollutant-resistant plants.

Among the more promising approaches being taken in the Laboratory's research programs are experiments to determine which plants are most resistant to — or tolerant of — air pollution.

Even within a given plant species, some forms have shown more resistance than others. Furthermore, some plants exhibit greater resistance at certain stages of development than at others. Slow growing plants are generally more resistant than soft, rapidly growing plants. By the same token, young leaves and older leaves are usually more resistant than recently matured leaves.

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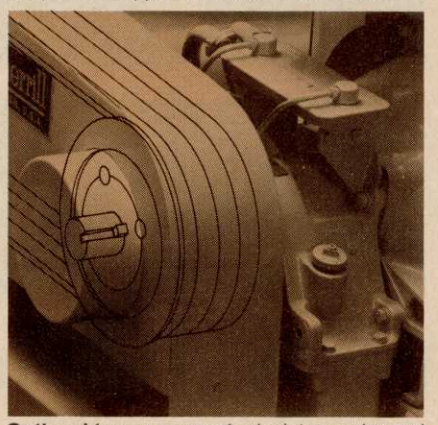
Staggered knife pattern for smoother cutting action. Mounted on an all-steel cylinder that, even without an external flywheel, is heaviest in the industry. Each cylinder revolution gives more cuts, produces smaller chips of uniform size. Self-adjusting knives are reversible; give twice the service between sharpening.



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Other specialized studies concerning the effects of air pollutants on plant life are being conducted by Dr. C. L. Wilson, plant pathologist, and Dr. B. R. Roberts, plant physiologist, at an ARS field facility — the Shade Tree and Ornamental Plant Laboratory in Delaware, Ohio. One result of this work is a finding that certain tree species take up more gaseous pollutants into their leaves than other species. Although this usually injures the plants, they continue to absorb the toxic gases as long as the leaf tissue remains functional. Because their needles do not drop off, evergreen-type plants take up pollutants year-round. Uptake of the pollutants may cause growth reduction and some quality changes.

Removal of pollutants by plants helps reduce the level of the pollutants in the atmosphere. Research at USDA in Beltsville, Md. and Stanford Research Institute in California, show that soil microbes remove pollutants such as ethylene and carbon monoxide which are not removed by higher plants.

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OSHA Official Describes Noise Solution

The most desirable method of controlling a noise problem is to eliminate the noise at the source, says F. A. Van Atta, special assistant to the director of compliance, Occupational Safety and Health Administration.

"The simplest rule of thumb," according to the OSH Administration official, "is that if you must raise your voice to talk to someone standing beside you there is probably a hazard to hearing, and a sound meter survey should be made to determine the hazard."

(The National Institute for Occupational Safety and Health recently recommended to the Occupational Safety and Health Administration the adoption of a noise limit of 85 dBA for all places of employment after an effective date to be determined by the Administration in consultation with NIOSH. The limit would apply immediately to new installations, while the exposure limits to noise now being enforced by OSHA of a time-weighted average of 90 dBA for an eight hour work day would be retained.)

Controlling noise at the source, says Van Atta, generally involves either modification of existing equipment and structures or a specification of maximum permissable noise levels of new equipment and structures at the design stage.

However, he points out, it is not enough to specify that the sound pressure level of the operators' station shall be 90 dBA or less. If another identical machine is placed nearby, the level produced by the two is apt to be 93 dBA at the operators' stations.

Among other related points, Van Atta observes:

- Where noises can be controlled by total enclosure of the equipment or by covering it with a layer of sound insulating material under a sound reflective outer shell, usually some account must be taken of the fact that sound insulators are generally good thermal insulators and there may be a problem of dissipating the heat in the enclosure.
- Noise sources in solid systems are commonly small and not good radiators to air. The main problem in controlling them is usually finding a means to uncouple them mechanically from the radiators with which they are associated.
- Noise from gas jets is produced by the turbulence at the boundry between the jet stream and the still air. It can be reduced by reducing the velocity of the jet stream or by spreading out the boundary layer.

There are other ways of dealing with noise in addition to reducing it at the source. Many operations, says Van Atta, permit the exposure of people to noise to be controlled administratively without modifying the noise. This can involve changing production schedules or rotating jobs so that exposure times are within safe limits. This approach, according to the OSHA official, is worth investigating since we do see instances where job rotation has avoided the use of personal protective devices and has the additional virtues of improving production and reducing employee dissatisfaction and complaints.

Pending better arrangements, employee exposure can be controlled by the mandatory use of ear protective devices. They should be issued only by a person who has been properly trained to measure the ear canal and to recognize the contra-indications, states Van Atta. The person who

issues the ear plugs, he adds, must be under medical supervision. They should never be issued from a tool crib without supervision.

Conclusions, however, about the general environment should not be drawn from changes in the hearing of any individual because of the wide variations in individual susceptibility to noise. Conclusions can be drawn from the average changes, or lack of them, of a group of people, exposed to the same environment, says Van Atta.

The final step in a noise program, he points out, is repeated noise surveys to locate changes in the environment and to assess the effects to engineering and process changes.

Copper Algaecides Patent Gravited Applied Biochemists

A patent covering a new formulation for copper algaecides has been granted by U.S. Patent Office to Applied Biochemists, Inc.

Specifically, Patent No. 3716351, issued February 13, covers a method of preparing copper and triethanolamine which results in increased shelf life and substantially improved effectiveness of the copper-triethanolamine complex as an algaecide.

The newly-patented process is not new to Applied Biochemists. It has been used the past two years in manufacturing the algaecides CUTRINE and CUTRINE Granular (for potable water, lakes, ponds, etc.)

The previous copper-triethanolamine patent, which expired in February, was purchased from the inventor when Applied was formed as a marketing entity in 1969. Instability of the complex was a drawback at that time, leading to development and subsequent patent application for the improved method.

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Cleary's 3336 turf fungicide is a non-toxic, non-mercurial product.
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Trees Pick Up Lead From Polluted Air

Trees help to get the lead out of the air downwind from incinerators where sewage sludge is burned, Connecticut investigators report.

George Stephens and Lester Hankin, of The Connecticut Agricultural Experiment Station, and William Glover, Jr. then of the State Department of Health, examined tree foliage near two Connecticut sewage treatment plants, both serving industrial as well as residential areas.

At one of the plants, they determined that about three-quarters of a pound of lead a day goes up the incinerator stack and into the air, and at the other, about a quarter of a pound.

Samples of foliage taken near the first plant showed an average of about 50 parts per million of lead, at the second, about 15 parts per million. This compares with 6 parts per million on trees in northwestern Connecticut, far from major highways, industrial plants, and incinerators.

The investigators determined however, that automobile exhausts apparently were responsible for about 60 percent of the lead they detected near the first treatment plant. The incineration of sewage sludge was responsible for the other 40 per cent. Traffic in the immediate vicinity of the second treatment plant was so light that it probably contributed little lead to the foliage examined, the investigators report.

Sod Growers Report Progress

EDITOR'S NOTE: Every so often it's a good idea to stop where we are and analyze ourselves, where we are, where we've been and where we're going. This is what John R. Hall, turf specialist at the University of Maryland has done below for the state of Maryland. By showing the progress made in this sod market you will have a chance to compare your own programs and achievements. *JAS.*

Through the efforts of many individuals in the state of Maryland, 1972 can be considered a progressive year for the turfgrass industry.

How do you measure progress in something as ubiquitous as the turfgrass industry? A measure of progress in our industry can come from the answers to the following questions:

Did the knowledge of turfgrass management in the industry increase? Were new chemicals, machines, or methods made available which made turfgrass management easier? Were research, teaching, and extension capabilities strengthened to meet increased demands? Did we establish new markets, interest and demand for turfgrass in Maryland? Did the members of the industry make more money in 1972? Did our industry communicate with other segments of society and upgrade the image of the professional in the turfgrass industry? Did we increase our ability to communicate between segments of our industry? Did our industry become more united or more fragmented?

Educational programs sponsored by the Mid-Atlantic Golf Course Superintendents Association (M.A.-G.C.S.A.), Maryland Turfgrass Association, Professional Grounds Management Society, Maryland Cooperative Extension Service and other organizations served to disseminate research information of practical value to turfgrass managers.

The Baltimore Conference, conducted by M.A.G.C.S.A. in January 1972 provided excellent programs directed at the golf superintendent.

The Seventh Annual Maryland Sod Conference held in March of 1972 presented an educational program beneficial to sod producers in Maryland.

The department of agronomy and the cooperative extension service provided educational programs for turfgrass managers at the December Agronomy Short Course. All of these educational programs served to increases the knowledge of turfgrass managers in Maryland.

We witnessed Environmental Protection Agency (EPA) labeling of many materials in 1972 that were previously held in limbo by lethargic administrative procedures. We are witnessing the increased promotion and usage of organophosphate insecticides such as Trithion carbophenothion, diazinon, ethion, malathion, and Dylox trichlorofon in place of the long residual chlorinated hydrocarbons such as chlordane and methoxychlor. This is, of course, in response to environmental concern voiced by the public.

Increased use of systemic fungicides was witnessed as a result of a combination of their increased residual effectiveness and the economic impracticality of short residual fungicides.

As labor costs continued to rise in 1972, we witnessed the increased popularity of labor-saving machinery such as the sand trap rake, triplex mower, truckster spray rigs, verticutters, spikers and topdressers.

A management method becoming increasingly popular in Maryland is winter fertilization of cool season turfgrass. The advantages of increased rooting depth and carbohydrate reserves, early green up, and less crabgrass competition for nutrients are being realized.

Research capabilities in 1972 at the University of Maryland were enhanced with the employment of Dr. Douglas T. Hawes in the department of agronomy. Dr. Hawes is beginning studies to determine the practicability of utilizing zoysia grass alone and in combination with bluegrass on golf tees in Maryland.

New markets for turfgrass in Maryland were developed in the sod industry. In 1972 we witnessed increased utilization of quality sod specifications that were demanding Maryland State Certified and Approved Sod. The trend will continue toward tighter and tighter specifications for quality sod.

Sod market potential will closely parallel the economic trends of 1973. The Maryland Turfgrass Association's efforts to upgrade the quality of sod in Maryland is now being observed in increased prices and demand for quality sod. Much still needs to be done in promoting the importance *of* and need *for* turfgrass in Maryland.

An attempt is being made to upgrade the professional image of the golf course superintendents through their national certification program. In this program the superintendents are rigorously examined to determine the extent of their turfgrass management knowledge. If they meet the high standards set by the National Association they are classified as "Certified Golf Course Superintendents". This provides the superintendents with a status in their profession not unlike lawyers who have passed bar examinations or public accountants who have become

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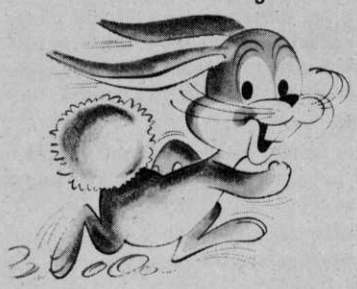

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Certified Public Accountants. It is a means of establishing professional image for their occupation. As of October 1972, five superintendents were currently "Certified" in Maryland.

Attempts to increase communication between segments of the turfgrass indusry in Maryland were made by the people involved in the formation of the Maryland Turfgrass Council. This Council was formed to promote and unite the interests of individuals, organizations, public and private institutions, and industry for the improvement of turfgrass in Maryland. The organization hopes to bring together people from all segments of the turfgrass industry and move toward the achievement of common goals. Whether or not the Maryland Turfgrass Council can achieve these objectives remains to be seen, but their objectives are in the interest of the Maryland turfgrass industry.

Progress has been made in 1972. More progress will be made in 1973. Plans are already made for the Eighth Annual Maryland Sod Conference to be held in College Park, March 8. This and other educational programs will continue to increase the body of turfgrass management knowledge in the industry.

Research on quackgrass and bermudagrass eradicating chemicals and management procedures will continue in 1973 as will variety evaluations and studies designed to increase our understanding of turfgrass management.

We must continue in our effort to unite as an industry and establish lines of communication between the segmented turfgrass interests.

We must continue to promote programs that raise the image of our profession.

We must get about the task of determining the importance of turfgrass to the people of the State of Maryland. Progress requires *time* and people with *determination*. The Maryland turfgrass industry has both.

Environmental Color Film Promotes Wise Herbicide Use

A new film, "In Harmony With Our Environment" has just been released by Amchem Products, Inc.

According to the company, the film helps bridge the gap in associating the use of herbicides with man and his environment. Amchem says that the continued use of weed and brush control chemicals is absolutely essential to man's continued well being. At the same time, they believe applicators must thoroughly understand herbicides and use them properly.

The film shows long shots and close ups of herbicide application along utility rights-of-ways with helicopters. It also depicts the testing and analysis a candidate chemical is subjected to before it can be registered by the Environmental Protection Agency.

Accompanying the film is a new brochure which answers questions about herbicides.

For more information about this 16mm color film write: Amchem Products, Inc., Ambler, Pa. 19002.

Plant Resistance To Pollution Is Maryland Research Project

A botanist at the University of Maryland is conducting research on the ability of plants to withstand disease after exposure to low doses of ozone, an air pollutant.

According to Dr. Charles R. Curtis, an assoicate professor specializing in plant pathology, the combination of automobile exhaust and sunlight produces ozone, a highly reactive gas which is extremely toxic to plant cells. Dr. Curtis' research will help to establish the degree of influence which ozone has on the susceptibility of plants to disease-causing organisms.

He explained that the work is important because there is a "critical lack of basic scientific data concerning ozone damage to plant enzyme systems associated with plant disease-resistance mechanisms."

Because all enzymes are proteins, Dr. Curtis is studying protein structure in plants to determine the ozone damage to the plant enzyme systems. He is using a relatively new technique in his research, called two-dimensional electrophoresis, which provides a visual image of plant enzymes present.

By comparing the enzymes from ozone-treated and untreated plants, some idea of the ozone effect on plants may be found.

After completion of the study, Dr. Curtis will apply the same techniques to studying effects of sulfur dioxide on plant enzymes. Sulfur dioxide is an industrial air pollutant, but is not as toxic to plant cells as ozone.

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For More Details Circle (161) on Reply Card

Calif. Advisors Course Slated For April 2-13

A concentrated study-training course for pest control advisors will be offered at Crescent City, California, April 2-13, 1973 for those persons who must pass state examinations for licensing in the agricultural pest control advisors specialties.

A pest control advisor is defined as "any person who, as a requirement of or incidental to his employment or occupation, offers instruction or advice to a producer of an agricultural product or to any public or private agency concerning the use of any pesticide, method or device for control of any plant or animal pest or plant growth." The course will be of value to many others as well.

The anticipated Federal Environmental Protection Agency requirement that all pesticide applications be prescribed by Pest Control Advisors and all applications of pesticides be made by certified applicators, makes the content of this course valuable to farmers, ranchers, pesticide dealers, pesticide salesmen, ranch foremen, nurserymen, foresters and others.

The course will utilize the study guides, slides and tapes for pest control advisors Examinations developed by the University of California. They will be supplemented by presentations from University specialists, the Agricultural Commissioners office, the California Department of Agriculture and members of the class who may possess expertise in one of the license specialties.

Attendance may be for the entire course or for any portion(s) of the course, however registration must be in advance in order that suitable quarters, study manuals, forms, etc. can be obtained.

There is no course registration fee for verified California residence. Out of state registration will be $20.00 per person.

Individual, personal copies of the Study Manuals are recommended and these may be purchased from the School District on April 2 at the attendance desk. Write: Agricultural Commissioner, Del Norte County, P.O. Box 159, Crescent City, Calif. 95531.

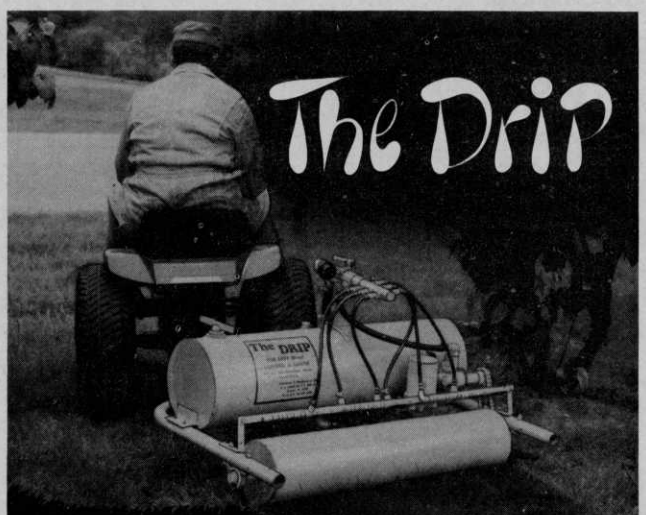
Every effort will be made to have extra study manuals available for classroom use by persons who do not desire to purchase a personal copy.

The California Department of Agriculture, Bureau of Agricultural Chemicals has advised that, given sufficient applicants, they will administer the Law-Regulation and Safety Examination to prospective pest control advisors. Specialty subject matter examinations will be given as already scheduled.

Seed Marketing Service Offered To Green Industry

Paul Florence has announced a new turfgrass seed marketing service to provide sod growers, and other professional turf managers, special lots of the favorite turf varieties.

Selected for maximum purity, the seeds are given exensive tests to detect the presence of troublesome contaminants. The buyer is given facts to help him determine seeding rates and to give him a comparison of the inherent vigor of different lots of seed. This vigor analysis is a new laboratory process offered exclusively by this seed marketing service.



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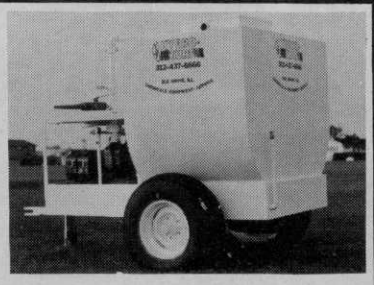

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Mauget Tree Injection To Hold DED Meetings

A series of 15 meetings in as many states on the control of Dutch Elm Disease have been scheduled for arborists by the J. J. Mauget Co., Burbank, Calif.

Purpose of the meetings, according to Del Kennedy, vice president of Mauget, is to gain a greater understanding of the Mauget tree injection technique. The Mauget system utilizes a feeder tube and capsule through which Benlate benomyl fungicide is injected into the tree.

Benlate was registered by the Environmental Protection Agency about a year ago as an aid in the control of DED. The Federal label recommended its use on elm trees as a foliar spray or trunk injection. Only trained arborists may apply the compound.

Kennedy said that seminars conducted last year throughout the eastern and midwestern states provided the necessary training needed by arborists to use the injection system. This year's meetings will present new information on the Mauget injection system as well as new methods and available products. He further stated that those who attended previous meetings are invited to see improvements and new techniques this year.

Dates and meeting sites are: Phoenix, Ariz., Holiday Inn, airport, March 27; Spokane, Wash., Ramada Inn, March 29; Houston, Texas, Holiday Inn, airport, April 9; Oklahoma City, Okla., Holiday Inn-West, April 11; Little Rock, Ark., Holiday Inn, North Little Rock, April 13; Atlanta, Ga., Holiday Inn-South, April 23; St. Louis, Mo., Holiday Inn-North, April 25; Louisville, Ky., Holiday Inn-South, April 27; Denver, Colo., Holiday Inn, airport, May 7; Minneapolis, Minn., Holiday Inn, airport #2, May 9; Chicago, Ill., Holiday Inn, O'Hare airport, May 11; Cleveland, Ohio, Holiday Inn-airport-west, May 15; Philadelphia, Pa., Holiday Inn, airport-south, May 28; New York, N. Y., Holiday Inn, LaGuardia, May 30; and Boston, Mass., Ramada Inn, Logan Int. Airport, June 1.

An $8 per delegate charge payable to J. J. Mauget Co. has been set as the cost for the meeting. This includes a coffee break and lunch. It is requested that registration for the meetings be placed at least 10 days prior to the meeting date. For more information, write: Del Kennedy, P.O. Box 365, Ukiah, Calif. 95482.

EDITORIAL *(from page 11)*

cerned groups received special invitations to submit comments and suggestions on implementation of the new law's provisions.

As we go to press, we are not aware of any Green Industry organization's feedback either to EPA or to the membership through newsletters. Yet this law affects every Green Industry member to one degree or another.

Complacency has no place in an industry as dynamic as ours. An active membership recruitment program is desperately needed if this industry is to become strong. And active organization in key local, state and national issues by executive secretaries, executive groups and legislative committees is the catalyst that triggers the response from members.

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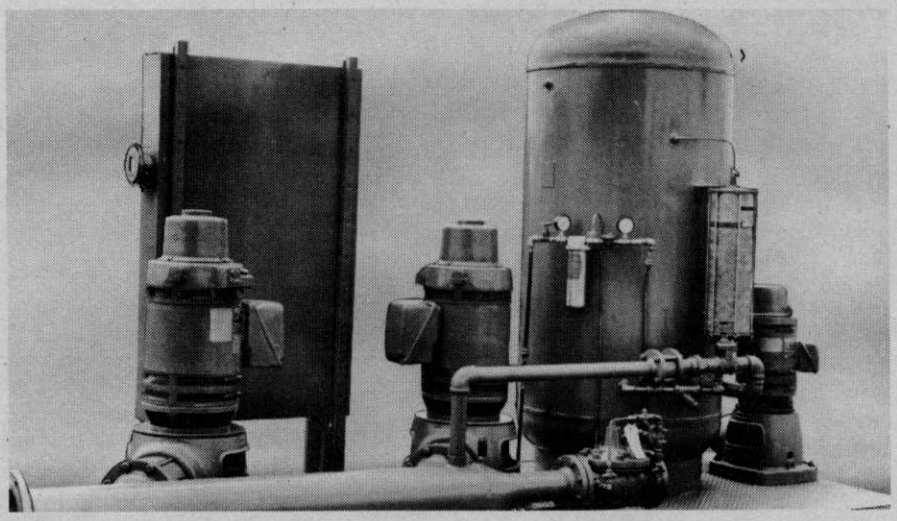
Pump Station Problems Solved By Texas Firm

What's the source of most of the problems facing owners and operators of golf course sprinkler systems?

It's the pump station. At least that's the view of Venable Sprinkler Sales, Inc., a Texas-based company which designs, supplies and installs sprinkler systems.

According to Robert T. Venable, executive vice president, there are two reasons why the pump station is the source of so much trouble in connection with installing a sprinkler system. "There are many competent irrigation contractors, but few of these are good at installing pumps. As a result, there is a tendency to either get a bad total system because the pump station was installed by unqualified contractors, or the responsibility is divided between the pump and irrigation contractors with neither wanting to take the responsibility for the job."

The solution, according to Venable, is a pre-assembled, pre-wired pump station, with pre-built flume and could be used with their systems.



Pre-assembled, pre-wired Pump-A-Matic has been developed by Venable Sprinkler Sales, Inc. The new pump station will solve many of the basic problems for sprinkler systems. Electrical panel permits easy wiring to an irrigation system.

adjustable pre-built stacks.

The company originally built this pump station and designed it so it They report that golf course architects who have seen the unit like the fact that it can eliminate unsightly pump stations on the course.

The unit can be installed in two days after arrival on the job site. No welding is necessary since it is pre-built, with only a minor amount of bolting required. The flume and the stacks, the discharge for the pressure relief and bypass of the double dogleg from the pump header are all that need to be bolted. Wiring also is held to a minimum because much of it is done prior to shipment.

Called Pump-A-Matic, the unit

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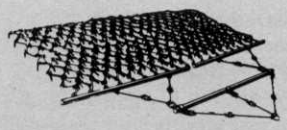

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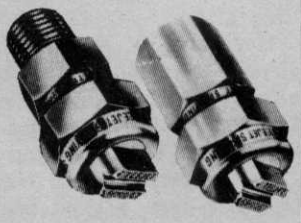

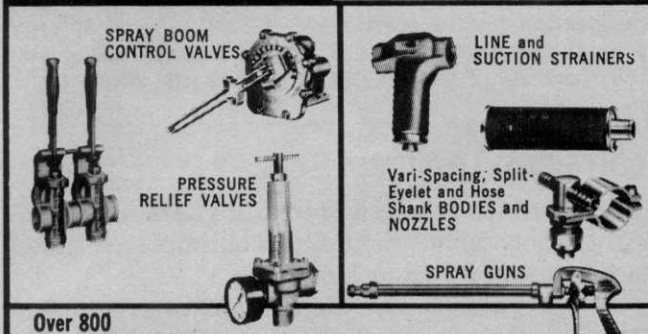

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The only wiring required is the tie-in from the transformer to the pigtails coming out of the all-in-one panels.

For more details, circle (721) on the reply card.

Ohio Nursery Short Course Attracts Record Crowd

The Ohio Nursery Short Course for arborists, turf management specialists, landscape contractors, garden center operators and nurserymen held in Columbus, Ohio in January attracted a record crowd of 1,800.

The 65th annual meeting of the Ohio Nurserymen's Association, the annual meeting of the Ohio Chapter of the International Shade Tree Conference and a meeting of Chapter 1 of the American Association of Nurserymen were held in conjunction with the short course. This event is sponsored by The Ohio State University, Ohio Nurserymen's Association, Inc., and Ohio Chapter, I.S.T.C. in cooperation with the Ohio Agricultural Research and Development Center and Ohio Cooperative Extension Service.

The educational sessions highlight the Ohio Nursery Short Course, however, a 70 booth trade show was also featured along with numerous displays of an educational nature.

For the first time, at the "Annual Ye Olde Tyme Dinner," two O.N.A. Distinguished Contribution Awards were presented. One was awarded to Joseph Strickfaden of Strickfaden Nursery, Sandusky, Ohio. Joe has been the general chairman of the L. C. Chadwick Research Fund which is now past the half-way point in the goal to raise $100,000. In addition, he has served in numerous capacities in the O.N.A. for many years, including the presidency in 1953.

The second recipient was Dr. Kenneth W. Reisch, associate dean, college of agriculture, The Ohio State University. Dr. Reisch, known as "Ken" in the industry has been executive secretary of the O.N.A. for the past 11 years and a co-chairman of the Nursery Short Course for 20 years.

R. Henry Norweb, Director of the Holden Arboretum, Mentor, Ohio was awarded Affiliate Membership to the O.N.A. in recognition of outstanding service and contributions to the nursery industry through the Arboretums many activities.

Newly elected officers of O.N.A. are: William Thornton, Thornton Environmental Industries, Cincinnati, president; Edward Losely of Herman Losely & Son, Perry, vice president; Pete Olmsted of the Ohio Hardware Association, Columbus, executive secretary.

The new members of the O.N.A. executive committee are: Larry Riegel, The Andersons, Maumee, Ohio; Jack Goode, J. S. Goode Nursery, Circleville, Ohio, and Gied Stroombeck, Roemer Nursery, North Madison, Ohio. The remaining members of the executive committee include: immediate past president, Robert Siebenthaler, The Siebenthaler Co., Dayton, Ohio; Dale Manbeck, Manbeck Nurseries, Inc., New Knoxville, Ohio; Kenneth Natorp, The William A. Natorp Co., Cincinnati, Ohio, and Eldon Studebaker, Studebaker Nurseries, Inc., New Carlisle, Ohio.

Elected as governor from Chapter 1 (Ohio) of the A.A.N. Board of Directors was Zophar Warner, Warner Nurseries, Willoughby. Serving as lieutenant governor will be Joseph Strickfaden, Strickfaden Nursery, Sandusky.

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Use 3-D Weedone. For great results on turf. Any turf.

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Amchem Products, Inc.
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For More Details Circle (172) on Reply Card

ARBORIST SHOP TALK

By Hank Harvey Jr.
Rutledge, Pennsylvania

More From Your Tools

Whether you are employed by someone else or run your own business, the success of your daily operations can be dependent on the tools you use and the condition they are in.

If you are the man on the job, the difference between a good, sharp, well oiled, splinter-less tool and a beat up dog, can make the difference between a good day and a good job, and an eight hour struggle that leaves you feeling mad at the world and indifferent as the quality of the job.

If you are an employer the difference between good tools and satisfied men and rough-to-use tools and disgruntled workers can mean a difference in dollars and cents for you.

But more important than either of those considerations is the fact that tools in poor condition are often dangerous or lead to dangerous improvisations by the people who must use them. For example: Two men go out on a job to do some light pruning. The pole-clip won't work right so one of them decides to use the root-loppers while standing on a creaky stepladder, borrowed from the customer or a neighbor. He falls and gets hurt.

Whose fault is it that defective tools ever reached the job site in the first place? The worker who fails to report a tool that is too dull or rusty or has a cracked or splintered handle? The foreman who knows the tools need attention but who gets out too early in the afternoon and in too late in the morning to ever get around to fixing them? Or is it the fault of the employer who doesn't get on-the-job enough to see for himself the condition things are in. They are all to blame, of course, but that *still* doesn't get the tools fixed, does it?

Here are some suggestions to help keep things ship shape on your operations.

If you are the worker on the job, check out every tool every time you use it. (Usually that only means looking at it, or feeling the edge or teeth to make sure it is sharp). If it isn't okay, tell your foreman and ask for another or ask if you can sharpen it or repair it yourself before you use it. If he refuses that, you'll probably have to get by the best you can for the day, but insist it is repaired before you have to use it again. If it is obviously dangerous, (such as a sledge hammer or ax with badly cracked handle or loose head), courteously refuse to use it, period! (Don't worry about your boss getting mad at you. No court of law in the country would allow you to be fired because you refused to endanger yourself or others . . . and he knows it).

If you are a foreman or crew leader you should check out the equipment your crew uses, daily when it comes in. If it is faulty it should not go out again till repaired. Hand tools such as hand saws, pruning shears, etc. should be individually assigned. This will not only reduce loss and theft, but the tools will be better cared for usually if the users know *they* will always have to use them and account for loss or damage.

Every climber should have his *own* rope. He and he only should coil it up after each use. That way he personally can feel for nicks, or burns or other damage to the rope on which his own life depends.

When checking over hand tools, look for dull edges to be sharpened. Working parts to be oiled. Loose handles to be tightened up. Or cracked handles that make tools hard to use or are dangerous. Look for parts missing. Check pole-saws and pole-clippers for loose heads, dull blades, damaged pull ropes and splintery handles. Pole saw blades get slight bends which make them next to impossible to use, look carefully for them.

If you are the employer you should realize that keeping good equipment is as important to the success of your operation as is good personnel. By scrimping on tool maintenance, you will only out-cheap yourself in the long run.

Periodic in-the-field checks should include careful examination of the equipment condition. Your worker and foreman should know that you feel that their safety and working conditions are important to you.

If your operations are large enough perhaps you should incorporate a regular tool inspection and maintenance program. In any case you could have someone working on rainy days, on tool repair and maintenance.

It doesn't take any mental giant to see that everybody benefits from tools kept in good repair and everybody loses if they are not. Then what is everybody waiting for? There's nothing to it but do it!

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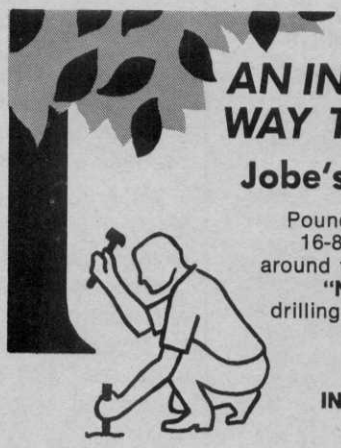

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Pound these spikes of high-analysis 16-8-8 fertilizer into the ground around trees, and rain does the rest. **"Nearly three times faster** than drilling," states a leading university. Write us for details plus the university report.

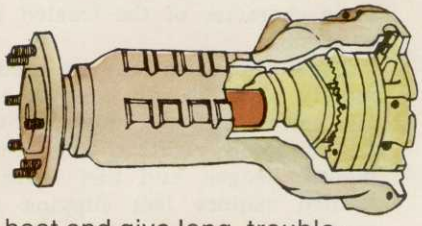
INTERNATIONAL SPIKE, INC.
462 East High Street
Lexington, Kentucky 40508

For More Details Circle (146) on Reply Card

New Ford 3550: Landscape Special.

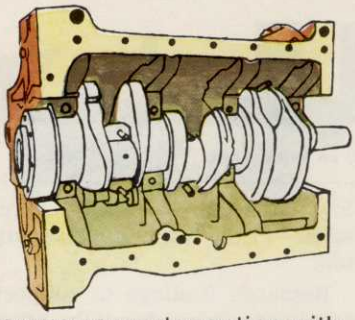
Here's a fresh combination of new power and equipment for your loader and landscaping operations. With new 56.4 bare engine hp diesel engine . . . ¾ cubic-yard loader . . . and heavy-duty final drive . . . new Ford 3550 has everything it takes to step up operations.

Big double-reduction final drive is carried in a husky rear axle housing with 9,000-pound overall capacity. Final drive features inboard planetaries to reduce stress on transmission gears . . . with multiple disc brakes sealed in oil to dissipate



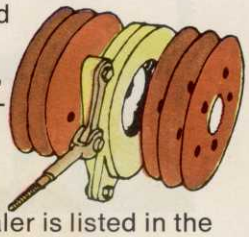
heat and give long, trouble-free service.

New 56.4-hp diesel features heavy, strong parts in a short, rigid block; famed Ford 3-cylinder design for long life and low maintenance. Add the



torque converter option with power reverser and you've got the engine and transmission combination to step up all operations with loader or 3-point hitch equipment.

Power-assist steering eases maneuvering. Optional diff-lock keeps you moving where others spin out. And heavy-duty front axle with 28,000-pound maximum strength rating resists the stresses of rough going under heavy front-end loads.



Try the 3550, landscape special from Ford. Your Ford tractor and equipment dealer is listed in the Yellow Pages under "Tractor Dealers" or "Contractors' Equipment & Supplies." See him for information on how to buy, lease, rent or finance.

NUMBER ONE ON WHEELS AND GROWING

FORD TRACTOR

Ford

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"EVER-GREEN" TURF IRRIGATION VALVE BOX COVERS...

...other advantages are more obvious!

Golf courses, estates, parks, cemeteries, private clubs, landscaped lawns—why put up with ugly concrete or rusty cast iron turf irrigation valve box covers? Now you can have green covers that blend beautifully with the turf. And they're made of tough SUPERFLEXON® thermoplastic that lasts and lasts. Thermoplastic valve and meter boxes are resistant to moisture, and unaffected by temperature changes. They're also less brittle than concrete or cast iron . . . and much lighter, easier to install and to store. And they cost less! Thousands are in use from coast-to-coast—Philadelphia, Pa. to Sunnyvale, California.

Thermoplastic turf irrigation valve boxes with "ever-green" covers offer a new dimension in appearance as well as utility.

For complete details, write: AMETEK, INC., Plymouth Plastics Division, 502 Indiana Avenue, Sheboygan, Wisconsin 53801.

Meter Pits (round) and Meter Boxes (rectangular) can be supplied with "ever-green" cover.

Also available: Durable, easy-to-install AUTOSTOP®, less costly than concrete curbs. Weather and crumble proof. Never needs painting; impregnated yellow, green, forest brown or white. Write for facts.

AMETEK / Plymouth Plastics

AMETEK

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Soil Fumigation Study Shows Nutsedge Control

Soil fumigation has been an accepted practice for about 20 years among nurserymen who desire healthy ornamental plants that are free of soil-borne diseases and insects.

Now horticultural research workers associated with the University of Maryland at College Park have shown that soil fumigation each fall at sufficient rates and proper soil temperatures also can control yellow nutsedge—a pesky perennial weed—in the following growing season.

Research findings to support this conclusion were formally presented in February by Dr. C. Edward Beste, extension horticultural weed specialist for the University of Maryland. Dr. Beste spoke at the 13th annual meeting of the Weed Science Society of America.

His published report represents the finale of a three-year study begun by the late C. Dwain Altman, also a Maryland extension horticultural weed specialist. Altman's project was prompted by observations from fumigation studies involving soil-borne diseases.

The Beste-Altman study involved three commercial fumigants, Vorlex, Telone C and DD-PIC. It showed that commercially acceptable yellow nutsedge control was obtained with Vorlex at 30 gallons per acre, and with Telone C or DD-PIC at 40 gallons per acre applied in the fall.

Effectiveness of nutsedge control with all three fumigants was reduced measurably as soil temperatures at the six-inch depth fell from 50 degrees F. to 40 degrees F. at the time of fumigation.

Effectiveness of Vorlex in controlling nutsedge, for instance, dropped off from 80 percent to only 20 percent with a 10-degree drop in soil temperature at the six-inch depth.

The other two commercial fumigants each showed an effectiveness drop from 80 percent to 60 percent for nutsedge control under identical temperature conditions in the Maryland study.

Dr. Beste concluded that the fumigants should be applied in October. This timing would normally allow at least two weeks with soil temperatures of 50 degrees F. or more at the six-inch depth.

Delaying treatment beyond late November would permit too much chance of lower soil temperatures and consequent ineffective control of nutsedge.

Another practical aspect of the Maryland study was that it was done without using plastic tarpaulin soil coverings following fumigation. This means a significant reduction in labor and material costs.

NE Weed Science Society Explores Growth Retardents

Government and industry research continues to uncover Organic molecules which affect the growth of woody plant species. The goal here is to modify plant growth to suit man's needs without eliminating the plant in question. The effort entails the discovery of such compounds which do not change the basic character of the treated tree or shrub.

These chemicals may be used to modify plant growth beneath electric power lines and along highway and railroad rights-of-way. Ornamental hedges, and turf areas so treated require less clipping and mowing.

Drift control.
So economical you can't afford to do without it.
Nobody can afford pesticide-drift. That's why we made a drift-control spray additive anybody can afford. For as little as a cent a gallon of spray volume, aerial applicators, ground contract applicators and others can cut drift to reduce risks, increase safety.
Lo-Drift mixes quick and easy with herbicides and many other pesticides. You just add one pint per 100 gallons of water, and you're ready to go. (For extra thickening, you can go up to one quart per 100 gallons.) No special nozzles, no special mixing or spraying equipment needed.
Lo-Drift can be put through almost any spray applicator, no matter how small or large. Won't corrode equipment, fast, simple clean-up. Non-toxic too.
Lo-Drift is not a foam, not a particulating agent. It's an emulsifiable polymer that gets the job done easier and more economically than ever before.
LO·DRIFT™
SPRAY ADDITIVE
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AMCHEM PRODUCTS, INC., AMBLER, PA.
AMCHEM

Tree Care Booklet Offery By Davey

Taking care of shade trees in winter is a great way to get the jump on the spring season.

Now is an excellent time to inspect trees for decline or decay, broken limbs and signs of scale insect attack and start correcting these problems before spring arrives, according to J. W. Joy, vice president of The Davey Tree Expert Company. To restore a trees' strength, deep root feeding can be done whenever the ground is not frozen. Dormant spray applications for control of scale insects and Dutch elm disease can be done in late fall through early spring, weather permitting.

Pruning, cabling and bracing, removing dangerous trees and stumps, woodlot cleanup, vista pruning, or tree planting — if the ground is not deeply frozen — can be accomplished during winter months. Pruning, one of the most important tree care steps, can be done at any time of the year. Even in the dormant period, dead wood can be identified by bark discoloration, fungous growth, or appearance of the buds.

If dead branches and stubs are not pruned out, decay can spread into the sound wood until large branches or even main trunks become hollowed, weak and dangerous. Pruning out dead limbs improves the appearance of your trees, eliminates breeding sites for insects and disease, and risk of serious injury to people and property.

While many types of tree care can be done throughout the year, such services as tree moving and spraying must be timed to weaher, geographic location or insect life cycles.

A new calendar of tree care, describing the correct timing for all kinds of tree care, is available to homeowners in a new 36-page color booklet offered by the Davey Tree Company. Nearly 10,000 copies of the new four-color illustrated "Davey Guide to Tree Beauty and Tree Care" have been sold since it was released last May.

The booklet provides technical information in layman's language to help homeowners determine the general health of their trees, provide for their care, or select the most desirable tree and locate and plant it properly.

Copies at $1.00 each can be ordered by writing Davey Tree, Department 9A, Kent, Ohio 44240.

Area Injection Dealers Discuss New Techniques

On January 18, Guardian Tree Experts hosted a meeting of the Washington, D.C., area dealers of Mauget Injection Products. There were approximately forty tree men from Maryland and the surrounding states present.

Del Kennedy, vice president of Mauget Tree Injection Process, Inc., the new distributing company of Mauget Injection Products explained that C.L.M. National is no longer involved with these products. He feels that through the new company there will be more information and better service for the dealers.

Walter Money of Guardian Tree Experts went over the use of Benlate benomyl fungicide in the prevention and control of Dutch Elm Disease and told of experiences we have had with it in the past year.

Inject-a-cide B, an insecticide, has now been labeled by EPA for use this year. It is helpful in the control of elm leaf beetle, aphids on maples, ash and lindens, and red spider mite on pines.

There was a general brainstorming session of all the dealers' experiences and problems.

NEW FROM PURDUE UNIVERSITY

SODCO KENTUCKY BLUEGRASS

U.S. Patent 3135, 3175, 76, 77

Dr. W. H. Daniel, Purdue University, devoted 15 years of breeding, observation and comparison of bluegrass selections before the release of SODCO in 1967. Each of the four lines that make up SODCO were granted patents during 1972. SODCO has exceptional eye appeal due to its firm texture and very dark green color.

SODCO KENTUCKY BLUEGRASS has outstanding disease resistance and has received superior disease ratings in tests from major universities and turf organizations for:

—STRIPE AND FLAG SMUT RESISTANCE
—LEAFSPOT RESISTANCE
—POWDERY MILDEW RESISTANCE
—STEM AND LEAF RUST RESISTANCE

SODCO is a dwarf type variety with low growth profile and slower rate of leaf extension. Shade studies and greenhouse tests have proven SODCO to have **SUPERIOR SHADE TOLERANCE** over other bluegrass varieties.

For information and pricing, write or call:

Agricultural Alumni Seed Improvement Association, Inc.
P.O. Box 158, ROMNEY, INDIANA 47981
(317) 538-3145

Western Farmers Association
201 Elliott Ave., Seattle, Wash. 98119
(509) 547-1771

SODCO KENTUCKY BLUEGRASS IS PREFERRED BY THOSE WHO KNOW TURF

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Question: How do you clear a right-of-way adjacent to herbicide-sensitive crops and ornamentals?

Answer: Very, very carefully.

It's a tough job clearing weeds and brush that infest roadsides and utility rights-of-way. Doubly so since you have to protect bordering private property at the same time.

With normal spraying techniques, no matter how careful you are, it's impossible to control drift. This can result in damage to crops and ornamentals and lead to costly damage suits.

So it's important that an effective weed control program also be an effective drift control program. And of course, economical as well.

The Visko-Rhap program was designed to minimize the spray drift problems while economically and effectively controlling weeds and brush.

Visko-Rhap herbicides are special formulations made to resist drift and withstand wash-off. They're applied in thick, controllable streams that break up into heavy, oil-coated droplets before contact. So when they hit, they stick. And you control only the growth you want to control. You'll also be able to see where you've sprayed.

And surprisingly, the cost of the equipment is not at all prohibitive.

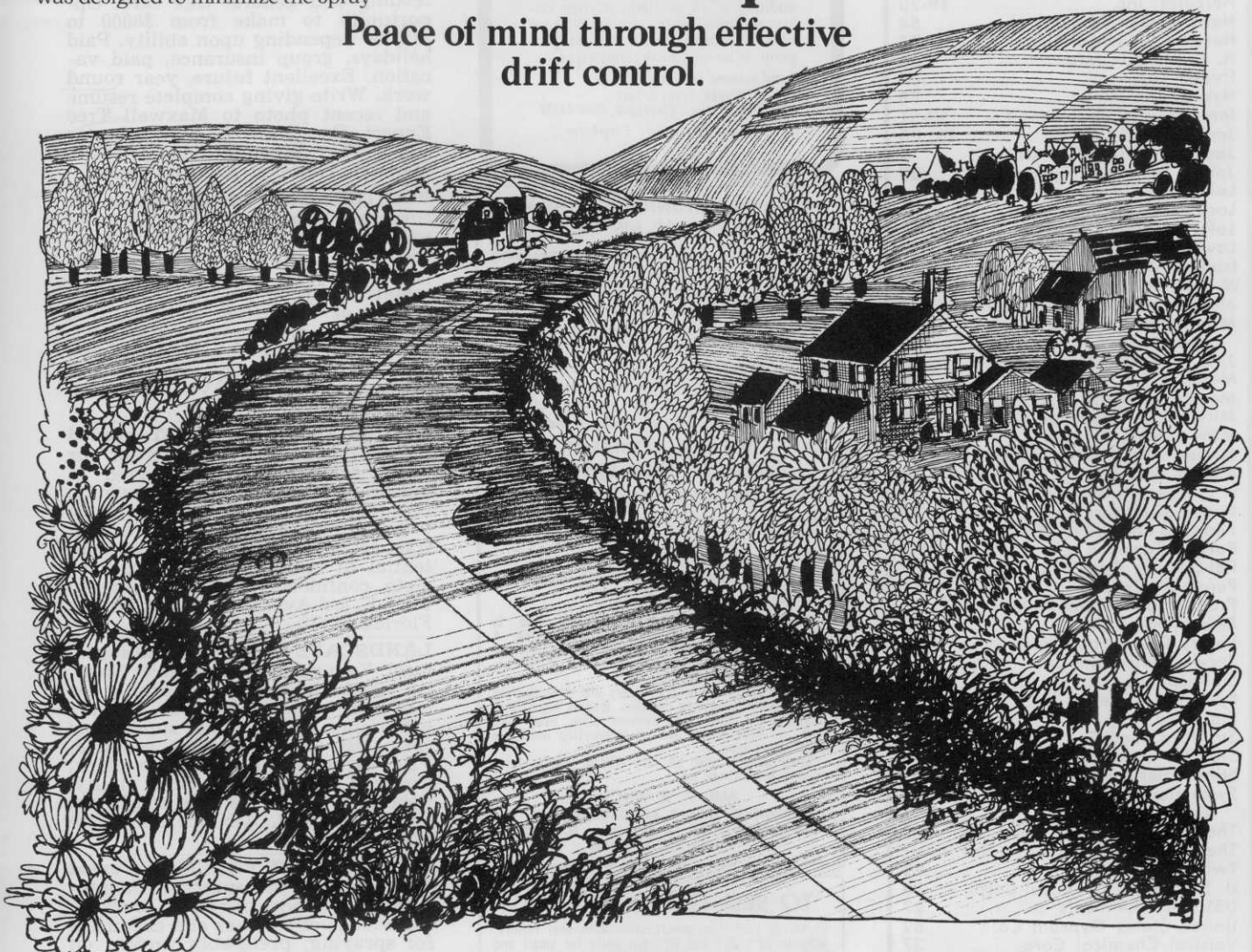
There are many advantages to the Visko-Rhap program. We'd like to give you a more comprehensive picture. And since it's difficult to do in an ad, we have a 14 minute film available for viewing in your office.

We'll also be happy to set up a demonstration for you or send one of our experts to talk with you. Or, we'll just send literature.

But by all means spend some time and find out all you can about Visko-Rhap. It's the spray program that offers you effective weed control and drift control. And peace of mind.

Visko-Rhap™

Peace of mind through effective drift control.



For information on how Visko-Rhap can help you, see your supplier or write Mr. R. P. Rich, Rhodia/Chipman Division, 120 Jersey Avenue, New Brunswick, N.J. 08903.

Rhodia
CHIPMAN DIVISION

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— classifieds —

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

Rates: "Position Wanted" 10¢ per word, minimum $3.00. All other classifications 20¢ per word, minimum $4.00. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment. Boldface rule box: $25.00 per column inch.

HELP WANTED

Golf Course Sales

The nation's leading commercial turf products company has several openings for technical representatives to promote a special line of commercial turf products. Representatives will call on golf course superintendents as well as industrial and educational institutions. Applicants should have a BS degree or its equivalent in one of the agronomic sciences, plus have sales or practical experience in the turf industry. In addition to an excellent starting salary, commission and automobile, we offer a comprehensive benefit program at no cost to the employee.

Send resume in confidence to:

Box 97, Weeds, Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102

An Equal Opportunity Employer

GREAT OPPORTUNITY FOR THE MAN WHO LIKES TO BE HIS OWN BOSS!

National leader in tree service, operating from Maine to Florida, offers excellent opportunity in sales and management. Ability to work with public and personnel is important. Must be experienced in tree work or horticulture. Excellent starting salary, expenses and fringe benefits. Intensive training course and outstanding growth potential. Send resume of experience or educational background to:

WILLIAM ECKHARDT
BARTLETT TREE EXPERTS
2770 Summer Street, Stamford, Conn. 06905

Announcement

We are re-developing our Landscape Department

Needed

A vigorous landscape salesman. One who is capable of selling, managing and supervising. A person with a college degree or some college experience plus at least 5 years practical experience after college.

A man that's at least 25 years old, that desires to improve his existing position. Weekly top salary, company car furnished, pension plan, paid Blue Cross — Blue Shield and an interesting incentive commisison plan.

Sales ability must be very strong. Please send resume & photo or call:

MR. F. R. MICHA
MONROE TREE & LANDSCAPE, INC.
225 Ballantyne Rd. — Rochester, N.Y. 14623
Phone 716 436-2900

TO SELL GANG MOWERS

Of sturdy cast iron construction with seel rollers. Roxy in 21", 25" and 28" cut units for small and medium size areas and IDEAL 30" cut built to last for larger areas.

ROXY-BONNER, INC.
2000 Pioneer Road
HUNTINGDON VALLEY, PA. 19006

GREENSKEEPER: Full-time, year-round position to be responsible for the complete care and maintenance of the newest Waukesha County golf course and courthouse grounds. Duties include supervision of fulltime and seasonal park maintenance helpers, care of golf course equipment and maintenance of greens, fairways and tees. Applicants should have 3 years of golf course maintenance experience and thorough knowledge of turf maintenance practices. Annual salary, $8,904 to $10,008 plus liberal fringe benefits. Contact Department of Personnel 414 547-2711.

EXPANDING TREE SERVICE company in northeast—looking for aggressive and experienced salesman. Starting pay commensurate with education, experience, and ability. Commission also paid on profits earned. Company car furnished: pension plan; paid hospitalization, excellent future. Send resume (with current annual sales and earnings) to Box 133, Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

TREE TRIMMER: Positions open for few top notch tree climbers experienced in pruning, cabling, removals, feeding and general tree care. Opportunity to make from $8000 to $11,000 depending upon ability. Paid holidays, group insurance, paid vacation. Excellent future, year round work. Write giving complete resume and recent photo to Maxwell Tree Expert Co., Inc., 7616 Winchester Road, Fort Wayne, Indiana 46819. Member: National Arborist Assoc.

WANTED—Chief groundskeeper for corporate headquarters. 125 acre site with 3.6 acre lake. Located in midwest area. Applicant must have approximately 3 years in landscape maintenance of park, school, golf course or industrial complex and supervisory experience. Annual salary plus bonus and benefits. Please send resume to Box 98, Weeds Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

LANDSCAPE ARCHITECT needed for top management position for our client. This client is involved in landscape design and construction throughout Florida. Fine opportunity to join a fine organization. Excellent starting pay, fringe benefits, and potential to move up. Reply in complete confidence to Paul Johnson, 150 S.E. 3rd Avenue, Rm. 209, Miami, Florida 33132.

LANDSCAPE FOREMAN and supervisor. Two positions available; Spanish speaking; currently working for landscape firm; minimum 2 years experience as foreman or supervisor; sprinkler and landscape oriented. Paid vacations, insurance plans; earnings commensurate with ability. Send resume: Garcia Tree and Lawn, P.O. Box 11442, Albuquerque, New Mexico 87112.

MAINTENANCE FOREMAN Versed in all phases of landscape maintenance; plant identification; working knowledge of diseases and chemicals for spraying; preferably worked on golf course or commercial maintenance. Salary dependent on ability. Send resume: Garcia Tree and Lawn, P.O. Box 11442, Albuquerque, New Mexico 87112.

CERTIFIED ARBORIST—With past experience as a Sales Representative for Tree and Landscape Service. Applicant should have strong background in insect and disease control as well as plant identification. Top commissions paid and many fringe benefits. Send resume to John P. Re, Lowden, Inc., 16 Franklin St., Needham Heights, Massachusetts 02194.

ASSISTANT golf course superintendent for a semi-private, 18 hole course in a Chicago suburb. Deadline for application is March 31, 1973. Please contact Gerald Hanko, c/o Timber Trails Country Club, Inc., 11350 Plainfield Rd., LaGrange, Ill. 60525. Phone 312 246-7633.

DISTRIBUTORS for D. J. Andrews, Inc. stump cutter teeth, pockets and bolts. Best wholesale and retail price in U.S.A. Add to this exclusive area, local advertising at our expense, etc., and you have our story. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230, or 716 436-1515.

POSITION OPEN for qualified man to represent Vermeer Sales in N.E. Ohio—W. Pennsylvania. Handle full line tree equipment. Tree spades-stump cutters-log chipper. Log splitters. Resume to: Vermeer, Box 724, Findlay, Ohio 45840.

USED EQUIPMENT

35 G.P.M. MYERS sprayer with 600 gal. tank anti-siphon tank filler, 500′ electric hose reel mounted on 1972 Ford 350 Custom with all steel bed and cab guard. Both truck and sprayer were bought new in March, 1972 and have had very little use. Myers TT29 tall shade tree sprayer with hydraulic stick control mounted on trailer unit, equipped with lights for night spraying. Used five seasons, good condition, KWH Mist Blower (Knapsack) with 2½ gal. liquid tank. Used five seasons, good condition. Two Asplundh brush chippers, twelve inch, equipped with Ford Industrial engines, one six cylinder 1967 and one four cylinder 1970. Both units in good condition. Prices and pictures of units will be available on request. Funk Bros. Tree Service, Inc., 1260 East Main St., Ashland, Ohio 44805. Telephones: Office 419 324-1549; Home 419 522-5620.

FOR SALE: 13 Gang Roseman Mowers, $2400.00. 7 gang Roseman, $1000-$1300.00, 5 gang Roseman, $650. Separate mowers, $150 each. All sharpened. 18" Ryan sod cutter with Ryder attachment, $1100.00. 35′ flatbed semi trailer, $850.00. 40′ flatbed trailer, $1700.00. 40′ Refrigerated trailer with thermo unit, $1800.00. 130 acre farm including building, $50,000 or will rent. 2 Wisconsin air cool 4 cylinder, $150.00. Phone Fall River, Wisc. 414 326-5267.

LIKE-NEW HUGHES 300-B helicopter, dual controls, heater, night lights, King KY90 radio, full panel, new main rotor blades, 427 hours. T.T., 4 hours S.M.O.H. Located Kansas City, Mo. Information, or request for public bid forms, can be obtained from Jefferson Parish Mosquito Control, 7001 Airline Highway, Metairie, La. 70003. Phone 504 888-1261. Bids will be opened April 5. Bids less than $21,000.00 not acceptable.

RECONDITIONED brush chippers, sprayers, log splitters, stump routers, bucket trucks. Let us know your needs. Equipment Sales Company, 5620 Old Sunrise Highway, Massapequa, New York 11758. Phone 516 799-7619.

FOR SALE — Overstocked with 12" and 16" Brush chippers, powered by Ford Industrial engines. Save over $500.00 on each unit. Immediate free delivery within 300 miles of New York. Imperial 516 541-4868.

TS-44T VERMEER tree spade on 1972 GMC: excellent condition, delivery available. World of Green, Inc., P.O. Box 1181, Arlington, Texas 76010. Phone 817 265-0346.

FOR SALE: 1967 Mitts & Merrill Chipper, V-8 engine, 16" chipper. Price $2,200. Novosel's Tree & Landscape Service, R6, Kittanning, Pa. 16201.

FOR SALE: Model 75 bean rotomist; model 55 bean Royal pump and regulator, model 1200 Dyna-Fog generator. United Tree Service, Byron, Michigan 48418.

FOR SALE: 3 or 5 gang commercial reel mowers, Worthingtons. See or write 1425 Northview Rd., Waukesha, Wisc. 53186. Phone 414 542-4969 evenings.

1972 VERMEER Tree Digger Model 44A. New condition, best offer. Kingsville Landscaping, P.O. Box 42, Kingsville, Ohio. Phone 224-0890.

301 JOHN BEAN Mist Blower for sale. Priced to sell. Good condition. Fowler Tree Surgery, 625 Lillie St., Elgin, Ill. 60120. Phone 312 741-0435.

POSITION WANTED

FIVE GRADUATES of a Turf and Golf Course Management Program (Minneapolis area Vocational School) are looking for permanent positions. All have completed Jacobsen Training Session, Toro Training Session, two years of school plus on the job training. Willing to locate anywhere. Resumes sent on request. Contact: Landscape Career Center, Anoka-Hennepin Vocational-Technical School, Anoka, Minnesota 55303.

FOR SALE

DOUBLE EDGE sod cutter blades. Will fit any Ryan sod cutter. Works like double edge razor blade. Cuts much more sod per blade. Made to bolt on both ways. $24.00 plus postage. New automatic sod loaders for direct loading to pallets, trucks or trailers. No workers needed on ground. Both products developed and designed by Hadfield. Write or call Glen Hadfield, 4643 Sherwood, Oxford, Michigan 48051. Phone 313 628-2000.

SOD FARM, 99 acres, all level muck, fully equipped, includes cutters, fork lift, wheel-roll irrigation, 3 Massey-Ferguson tractors, trucks and crop. Office, repair shop and storage buildings. 17 miles east of Cleveland. Priced to sell. Owner will help finance. Write Box 95, Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

THE GOLD ONES from D. J. Andrews, Inc., Stump cutter teeth, pockets, and bolts. Top quality and best price in the U.S.A. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230 or 716 436-1515.

IDEAL 5-ACRE RANCH. Lake Conchas, New Mexico. $2,975. No down. No interest. $25/month. Vacation paradise. Money maker. Free brochure. Ranchos: Box 2003GY, Alameda, California 94501.

PICKUP LOADING RAMP—Safety-cleated steel construction. Gives 6½ ft. slope, 3 ft. wide. Free brochure. Maple Valley Mfg. & Supply, Aurelia, Iowa 51005.

TURF FARM. In high use area of Fort Wayne, Indiana. 130 acres, equipment, modern home. Phone 219 639-3012.

EDUCATION-BOOKS

LEARN AUTOMATIC IRRIGATION —Complete self-taught course and textbook on fundamentals. Design, operation, maintenance, installation, pipe, equipment. Latest developments in automatic turf and landscape irrigation. New Edition now only $49.50 postpaid. California add tax. Send check, order or request for free outline. Larson Company, P.O. Box 4453, Santa Barbara, Calif. 93103.

SEEDS

SOD QUALITY MERION SEED for discriminating growers. Also Fylking, Delta, Park, Newport, Nugget and Pennstar bluegrasses as well as fine fescues. We will custom mix to your specifications. Michigan State Seed Company, Grand Ledge, Michigan 48837. Phone 517 627-2164.

CROWNVETCH SEED: Penngift and Chemung varieties. Direct all inquiries to: Walter C. Mehlenbacher, Castile, New York 14427. Phone 716 493-2553.

SOUTH DAKOTA-Kentucky Bluegrass seed, also Park, Nugget and Merion. Afton Seed Co., Winterset, Iowa 50273. Phone 515 462-1270.

MISCELLANEOUS

TREE APPRAISALS, SURVEYS, loss evaluations and expert consultation services. For names of members of the American Society of Consulting Arborists, Inc., throughout the country, contact: Executive Director ASCA, 12 Lakeview Ave., Milltown, New Jersey 08850.

LANDSCAPE DESIGN KIT 37 rubber symbol stamps and ink pad. Postpaid $25.00, C.O.D. $26.00 plus postage. Order direct or brochure sent. California add tax. T-Gordon's, Box 741T, Reseda, California 91335.

WANTED TO BUY

WANTED: Bean Model 100 roto mist, in the northeastern United States. Reply to Harder Tree Service, Box 111, Hempstead, N.Y. 11551.

Coming In April

WEEDS TREES AND TURF

Pesticide Exposure

trimmings

THEY'RE CHOPPING THE TREES at Buckingham Palace and Christopher Robin went down with Alice . . . Dutch Elm Disease has invaded the royal courtyard and claimed 11 elms. The elms were part of the palace's landscaped garden skyline. About 60 trees have been felled in royal parks in London and suburbs. About 1,300 are threatened.

A 4-H WEED PROJECT is one way to get your son or daughter interested in the science of weed control. At the University of California there's a beginning, intermediate and advanced project in weeds that help youngsters learn about this $5 billion business. The project has two parts. Learn by doing entails collecting, identifying and mounting weed plant specimens. The seconod part is on ways to control weeds in your garden, lawn or on the farm.

MIDWEST TURFGRASS GROWERS ASSOC. have elected new officers. They are: Don White, Des Moines, Ia., president; Ed Keeven, O'Fallon, Mo., vice-president; Bill Latta, Kansas City, Mo., secretary-treasurer; Glenn Hyde, Gothenburg, Nebr., director; Paul Whitters, Cedar Rapids, Ia., director; and Bernard McMurphy, Atlantic, Ia., director.

HAROLD W. GROTH, 74, has retired as director of the Cleveland Metropolitan Park District. The park, which covers more than 200 miles in and around Cleveland, is recognized throughout the country for its utility to the citizens of Cleveland. Groth is the second director to run the park system. Deputy director O. Dale Graham has been appointed acting director.

REMEMBER THE POEM "Trees" that started "I think that I shall never see A poem lovely as a tree." The author was Joyce Kilmer and he lived in New Brunswick, N. J. The State now owns the 130 year old Kilmer house. But the N.J. Arborists Association is interested in using the first floor of the house as its state headquarters. So New Brunswick mayor, Patricia Q. Sheehan named Howard B. Voorhees of Livingston vice chairman of the restoration committee. Voorhees has been Arbor Day chairman for the state for the past four years. In fact, the State Arbor Day ceremonies this year are planned for April 28 at the Joyce Kilmer home where one of the whips from the original Kilmer tree will be planted in memorium. The N.J.A.A. will renovate the Kilmer parlor as an office and the adjacent meeting room, formerly used by the American Legion post, will be retained and refurbished. ". . . Poems are made by fools like me, but only God can make a tree."

EXOTIC FISH may be great in the home tank, but more and more fisheries biologists are concluding that exotics are not the answer to aquatic weed problems. The current culprit is the white amur or grass carp, although at least four other exotics have reeked vengence in southern coastal and inland waters. Early trials in confinement areas gave indications that the amur would clean up the weeds which choke the lakes and rivers. Almost everyone thought that we had a silk purse by the tail. But data coming out of Missouri and Arkansas would now indicate that the fish is more like a sow's ear. Evidence suggests that the white amur has told a white lie about its herbaceous habits. It really prefers amphipods (shrimp) better than a salad diet. Who doesn't? In fact, preliminary data has it that Mr. Amur will eat weeds if weeds are the only choice. All this means that the amur competes with the native gamefish for what some describe as a diminishing food supply. The situation may well be already out of hand. It was reported at a recent national weed society meeting that white amur fingerlings are readily available through a midsouth fish magazine. And remember the white amur that was found in an Illinois river? One biologist estimates that the fish is already in 40 states. Texas has banned importations of the species. How do we get rid of the problem? No one knows, yet. Maybe there is a weed like the Venus fly trap that likes white amur.

LOOKING FOR A PROTEIN DIET —try leaves. Agricultural engineers at the University of Wisconsin have developed a way to get protein from fresh-cut vegetation. It's called "wet fractionation." They've found that the squeezin's from foliage can be used as a source of protein. Farmers are already doing it with alfalfa. In tropical areas already-present foliage could be used rather than crop foliage. Makes good feed for cows and with a little American ingenuity it could make an even better steak.

SPEAKING OF INGENUITY, people in California participating in the food stamp welfare program have put a modern touch to the old cat and rat story. Iowa Congressman H. R. Gross has discovered the conn game. These people are actually making a profit while eating for nothing, he reports. For a half-dollar a person can buy $28 worth of food stamps. Now for the kicker! The clever ones buy exactly $27.51 worth of groceries and receive 49 cents in change. This is the maximum change they can receive on any purchase. By adding one cent to the change, they have enough to buy next week's quota of stamps. In a month a person can buy $112 worth of stamps for 53 cents. Some people sell the stamps they don't need and actually make a profit.

Tantalizing Title Teaser

Next time you are called on for a speech topic about which you have not given much thought pull out this title dazzler. It works like a charm. It's guaranteed to dress up any presentation and yet provide wide latitude in which you may work.

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2—functional	2—reciprocal	2—concept
3—synchronized	3—logistical	3—projection
4—balanced	4—incremental	4—contingency
5—strategic	5—transitional	5—assumption
6—fourth-generation	6—policy	6—objective
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